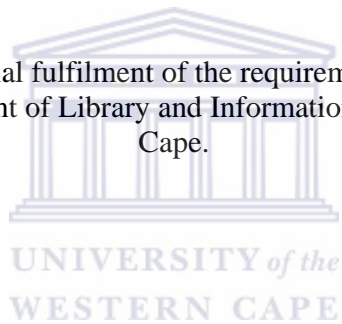


**INFORMATION SEEKING BEHAVIOUR OF GENERATION Y STUDENTS AT THE
STELLENBOSCH UNIVERSITY LIBRARY AND INFORMATION SERVICE**

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A mini-thesis submitted in partial fulfilment of the requirements for the degree of **Magister
Bibliothecologiae**, in the Department of Library and Information Science, University of the Western
Cape.



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INFORMATION SEEKING BEHAVIOUR OF GENERATION Y STUDENTS AT THE STELLENBOSCH UNIVERSITY LIBRARY AND INFORMATION SERVICE

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THE INFORMATION SEEKING BEHAVIOUR OF GENERATION Y STUDENTS AT THE STELLENBOSCH UNIVERSITY LIBRARY AND INFORMATION SERVICE

ABSTRACT

The project examines the information seeking behaviour of a small group of so-called Generation Y students at the Stellenbosch University as they undertake an academic assignment. There is consensus across the world that universities need to adapt to the needs of Generation Y students, brought up with high-level information technology, the internet and social networking. However, research shows that this does not mean that they are information literate. They have high-tech skills but often do not know how to analyse an information need or discriminate between information sources. Information scientist Carol Kuhlthau developed the ISP model upon which the study was based. Her model sees information seeking as a complex cognitive and affective process. Successful seekers have learned how to manage the process. University libraries need to adapt their information retrieval systems and services to meet the needs of their new kinds of students. The study, a small-scale intensive qualitative case study, hopes to provide insight into how they might do this. The researcher collected data while the participants were writing the assignment. Data gathering methods included interviews, journal writings and questionnaires.

DECLARATION

“I declare that *Information seeking behaviour of Generation Y students at the Stellenbosch University Library and Information Service* is my own work, that it has not been submitted before for any degree or examination in any other university, and that all the sources I have used or quoted have been indicated and acknowledged by means of complete references.

Lindall Elaine Adams



November 2009

Signed.....

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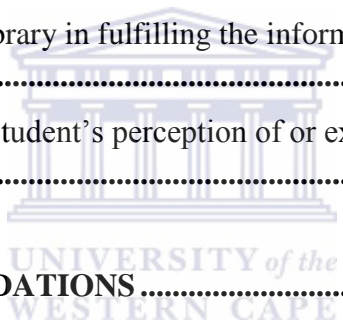
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LIST OF ACRONYMS

ASK Anomalous States of Knowledge

CERLIM Centre for Research in Library and Information Management

CIBER Centre for International Business Education and Research

CSALT Centre for Studies in Advanced Learning Technology

E-books electronic books

ECAR EDUCAUSE Center for Applied Research

E-COMMERCE electronic commerce

EDNER Evaluating the distributed national electronic resource

E-journal electronic journal

ETS Educational Testing Service

HESA Higher Education South Africa

IM instant messaging

IP Internet Protocol

IPOD Image Processor for Optical Data

ISP Information Search Process

JISC Joint Information Systems Committee

MP3 media player

NBT National Benchmark Tests

OCLC Online Computer Library Center

OPAC Online Public Access Catalogue

PDA personal digital assistant

SNS Social Networking Sites



SFX Self Extracting

VoiP Voice over Internet Protocol

WWW World Wide Web



CHAPTER ONE

INTRODUCTION AND BACKGROUND

1.1 Introduction

Frاند (2000: 16) argues that a new generation student is entering higher education and their approaches to learning (Walker, 2006: 8) are different to those of previous generations. The new generation student called “Generation Y”. The goal of the proposed study is to examine the information seeking behaviour of Generation Y students in order to see how library systems should adapt to their needs and preferences.

There is research that shows that Generation Y students lack critical thinking and logical reasoning skills (Weiler, 2004: 47). They lack discrimination in choosing information sources and selecting information from the sources. Research suggests that the Internet's readily available information has changed students' conceptions of the research process, in that they expect to find information quickly and without effort and their choice of topic guided by an estimated easy availability of information (Holliday and Qin, 2004: 363). When students encounter problems and obstacles when busy with information seeking activities it might lead to anxiety related to the cognitive processes within information seeking (Kracker and Wang, 2002: 303).

Generation Y students have been labelled as visual learners, exploring innovations and demanding immediate satisfaction (Mi and Nesta, 2006: 416). Generation Y is noticeably more technologically advanced than previous generation groups, and uses technologies such as computers, iPods and mobile phones with ease. Students born between 1978 and 1984 have more exposure to electronic screens, computer screens, television, movies and video games (Weiler, 2004: 46) at a young age than students

from previous generations and are accustomed to the use of the Internet when finding their information (Litten and Lindsay, 2001). Generation Y students are quite aware of alternative methods of finding information turning them into information consumers or information players. Holliday and Qin (2004: 356) and Partridge and Hallam (2006: 408) agree that Generation Y students are exposed to the use of the Internet or World Wide Web (WWW) at a very young age. Generation Y students want information quickly and readily accessible with one click of a button. Generation Y students belong to online social networks such as Facebook and can be assumed to use these networks to find information.

The use of current library Web sites came under the focus of this study. Library catalogues and databases compete with Google. Therefore, certain enhancements to the Stellenbosch University Library and Information Service's current library Web page investigated.

1.2 STELLENBOSCH UNIVERSITY LIBRARY AND INFORMATION SERVICE goals

The Stellenbosch University as an academic institution together with its library are deeply rooted within the community. Stellenbosch University Library and Information Services is a social institution. The library, structured around the main library, J.S. Gericke Library, has five branch libraries. The mission statement of the Stellenbosch University Library and Information Service is to provide an academic support service within a global information community. The Stellenbosch University Library and Information Service sets out the following goals:

- Provide a skilled client-oriented service.
- Employ appropriate technology and available resources to their fullest.
- Ensure access to information and the availability of adequate and up to date sources.

The study gathered information on how to provide a “client-oriented” service as it investigate the gaps between present library retrieval systems and the preferences of today’s students.

1.3 Rationale for the study

The rationale behind this study was to investigate the information seeking behaviour of Generation Y students in undertaking their academic assignments. The student body of the Stellenbosch University ought to include a high proportion of Generation Y students since the university attracts a high number of school leavers from the more advantaged sector of South African schooling. The likelihood that these students had access to the Internet at home and at school and belonged to online social networks is high.

The study focussed on students’ information seeking behaviour and handling of choices from their first encounter with an assignment through to completion. The researcher concentrated on student choices of using the Internet or library information retrieval systems when searching for information. The value of the study is the insight it could provide on student searching behaviour.

1.4 Theoretical framework

This study based on two theories from two different disciplines: Generation theory from sociology and Information seeking theory from library and information science’s user studies.

1.4.1 Generation theory

The sociology of a generation drew witness to the works of Karl Mannheim. Mannheim (1952: 290) described a generation as a biological rhythm, better known as birth and death. Hence, the emphases were on history and it influences a generation. The works of Karl Mannheim brought back an interest in generation research due to a change in demographic, cultural and intellectual developments (Edmunds and Turner, 2005: 559). In contrast to this sociologist, Pierre Bourdieu (1993: 160) focussed on the impact of social and cultural changes and its affect on a generation. A generation can change from being a generation in itself to a generation for itself all because of outside influences

such as politics, economy and education. Therefore, an active generation influenced by social and cultural influences at that time followed by a next generation that seems to be more passive than the previous generation. Edmunds and Turner (2005: 562) compare the 1960's generation, which went out to protest the Vietnam War, with Generation X that lacked social capital and job opportunities and came into an era known for its political passiveness. Hence, as the concept generation and the theory around it grows and new generations emerge with different points of view the focus should include what is affecting generations globally.

In this case, the focus is on Generation Y students and the influence of demographic, cultural and intellectual developments on their information seeking habits. Students from the Generation Y era are born between 1978 and 1984. However, some discrepancy on the exact dates seems to be present since other dates such as 1980-2000 given (Partridge and Hallam, 2006: 406). Generation Y are also better known such as Millennial generation, Echo Boomers, Nexters, Nintendo and Digital Generation. Generation Y students have different beliefs, attitudes and behaviour to those of previous generations. Developments in the world and society could easily influence a generation. Generation Y could be influenced by technological developments and economic prosperity. Generation Y have indulged in technological gadgets not just at home but also at school making them particularly comfortable with technology.

Any changes made by the Stellenbosch University Library and Information Services to satisfy the Generation Y needs could be beneficial to library. Thus, creating and expanding the library's virtual and physical space to benefit all.

1.4.2 Information seeking behaviour theory

Kuhlthau's Information Search Process (ISP) model were used as theoretical framework, based on years of research in the information seeking behaviour of school and university students (Kuhlthau, 1991: 368). This model is one of the most frequently cited in information science research (Pettigrew and Mckechnie, 2001: 69).

The ISP model has its roots in the earlier information seeking models of Kelly (1963), Taylor (1968) and Belkin (1980). Kelly's Personal Construct theory focuses on understanding how people develop in their personal life (Kelly, 1963: 46). Kelly identifies thinking, problem solving and people predicting events in their surroundings. It is argued by Kelly that all people are scientists (Kelly, 1963: 47) looking for answers which may help them to predict and control circumstances that are influencing their everyday life. The Question-Negotiation and Information Seeking in Libraries model as developed by Taylor (1968: 179) focuses mainly on the user and the interaction with the librarian. For example, the user enters the library uncertain of where to find information on a specific topic or even what tools to use to search for information. When the user approaches, the librarian a reference interview starts to form in which case the librarian would ask the user certain questions regarding the information he or she needs. Although the user might predict a possible outcome to their initial query the librarian still needs to negotiate a possible or in certain cases the most likeable outcome. Belkin's ASK model (1980: 135) focuses on the link between what the user is looking for when he or she inputs a query in an information retrieval system and the information he or she expects to be retrieved from an information retrieval system.

Kuhlthau's ISP model is beneficial to those working in the information studies field since it draws attention to information users and how they look for information, what they do with the information and how they feel when searching for this information. In this case it is presumed that the ISP model is appropriate to the study of the information seeking behaviour of Generation Y students since it not only focuses on the information seeking process but also on the emotions, thoughts, expression and the mood of the user when he or she searches for information. Holliday and Quin (2004: 363) pointed out that participants often felt frustrated with the perception that information seeking should be an easy task, but then became confronted with the complexities of information seeking. Kuhlthau's ISP model relies on cognitive learning theory as it sees information seeking as a constructive sense-making process that begins with uncertainty and anxiety. It describes what is going on in a searcher's mind from the beginning of the search to

where he or she builds meaning and new knowledge from the information they found. Therefore, argued that the ISP model becomes actively involved with a searcher during his or her information seeking process.

See figure 1.1 of the ISP model, which synthesises Kuhlthau's research since the late 1980's.

Information Search Process Model (ISP)

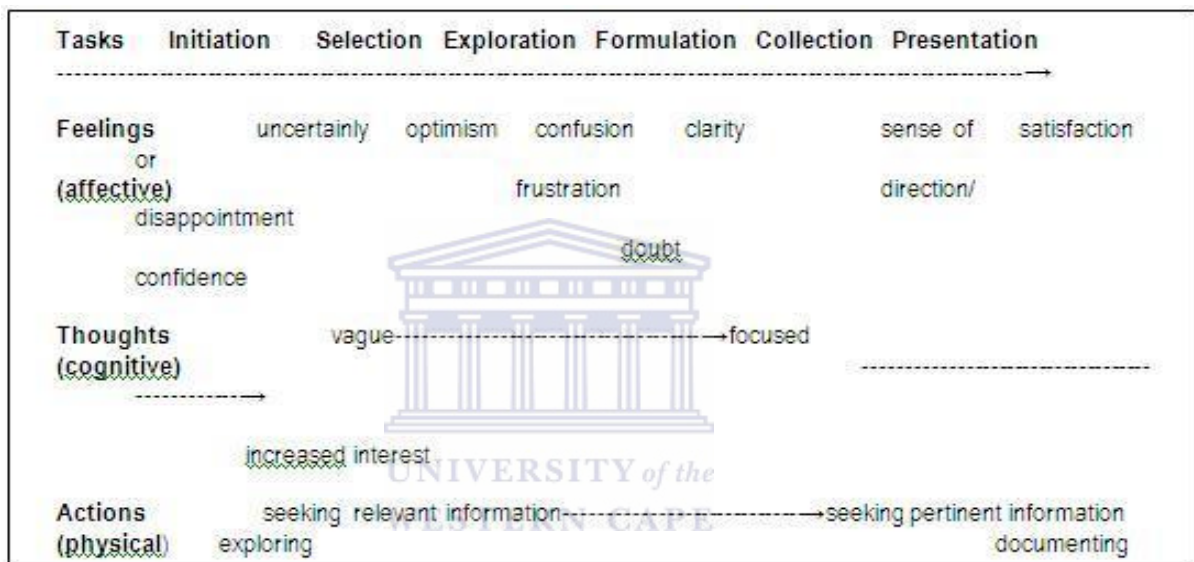


Figure 1.1: Information Search Process Model (ISP)

Source: Kuhlthau: (2004: 82)

The usefulness of the ISP model was tested in order to find out whether the Stellenbosch University students conform to the ISP phases. According to the model, a successful information search has various phases that do not always follow on neatly. The seeker begins with a sense of uncertainty to look for relevant background information to solve a problem or to do an academic assignment. If this is successful, the person has found a personal angle - something meaningful in the topic. This would act as a guide to a more focused search for pertinent information. The ISP model made up of six (6) stages: include initiation, selection, exploration, formulation, collection and presentation. The

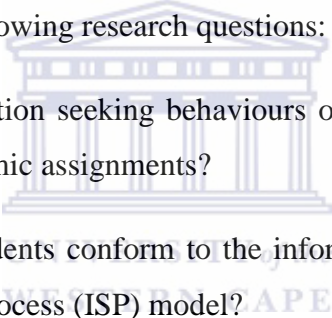
identified stages do not only focus on the information seeking tasks but also on how the person is feeling when he or she is busy conducting these searches. The ISP includes emotions, thoughts, expression and the mood the user is in when seeking information.

In a recent article, Kuhlthau points to research that shows that her model applies in the electronic environment as much as in the printed environment (Kuhlthau, Heinström and Todd, 2008). Students experience the same constructive stages of the information seeking process in digital environments and face the same pitfalls.

1.5 Research problem and questions

The research studied whether Stellenbosch University Library and Information Service provided services that match the information seeking needs of Generation Y students.

The problem leads to the following research questions:

- 
- What are the information seeking behaviours of Generation Y students as they undertake their academic assignments?
 - Do Generation Y students conform to the information seeking processes of the Information Search Process (ISP) model?
 - Does their reliance on information technology affect the information search process model, built by Kuhlthau?
 - What is the role of the library in fulfilling the information needs of Generation Y students?
 - What is a Generation Y student's perception of or experiences of the Library's information retrieval systems?

1.6 Research design and methodology

The study was a qualitative case study since the research problem was best explored by means of observing and interviewing intensively a small number of students. The frame of the ISP model was appropriate to study the information seeking behaviour of

Generation Y students since it not only focuses on the information seeking process but also on the emotions, thoughts, expression and the mood of the user when searching for information. Appropriate methods to investigate information seeking behaviour should include observation, interviews and reflections by means of journals and recordings. Kuhlthau (1991) used these data gathering methodologies in her longitudinal doctoral study of American students that led to the ISP model.

A qualitative study is beneficial when describing phenomena (Creswell, 1998: 51) in this case information seeking behaviour. The researcher followed the interpretivist paradigm since the researcher wants to share the participants' information seeking processes and interpret their social realities and how they make sense of them (Creswell, 2007: 21). The ISP model is itself often described as constructivist theory so the qualitative paradigm and methodology were appropriate. Six undergraduate students, that fitted the Generation Y profile within the parameters of students studying in one faculty at the Stellenbosch University, volunteered to participate. The six students were in the same broad discipline.

Participants' were asked to keep a journal in which they were requested to write down their experiences, thoughts, actions and feelings from the time they embarked on their academic assignment until they submitted the assignment. Participants had to describe critical incidents – choices of information sources, breakthroughs, blockages and changes of direction. Other data gathering methods in the study were open-ended interviews and questionnaires.

1.7 Scope and limitations of the study

The study was a small-scale qualitative study of only six participants presently enrolled at Stellenbosch University and therefore the findings cannot be generalised to students studying at other academic institutions in South Africa. However, it would provide insights for the library as it adapts its systems to today's students. Academic libraries have to learn how to adapt their user education to the Generation Y environment.

1.8 Chapter outline

The thesis has six chapters. Chapter 1 provides background on Stellenbosch University and examines the two theories that framed the study, Generation Y and Carol Kuhlthau's ISP model. Chapter 2 reviews the literature on the information seeking behaviour of Generation Y students with a focus on those studies that rely on the ISP or similar theories. Chapter 3 describes and defends the qualitative constructivist approach and the data gathering methods. Chapter 4 summarises the questionnaires, journals and interview data; and Chapter 5 interprets them in the light of the ISP model. Chapter 6 concludes with some recommendations for university libraries.

1.9 Ethical principles

At all times the ethical guidelines of the Research Committee of the University of the Western Cape were adhered. I respected the rights of the participants. I obtained informed consent from my research participants based on adequate information on the project by means of a consent form. The respondents were promised that all contributions to the study would remain anonymous. Participation in this research project was voluntarily and participants allowed to withdrawn at any stage of the research process. A tape recorder was used participant permission. Each participant received a transcribed copy of his or her interview data.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This section reviewed literature on Generation Y students with regard to their information seeking behaviour and use of Web search engines. The literature focused on libraries and technological developments in order for libraries to change their traditional library practices to comply with the information needs of Generation Y students. The literature study sought to reveal whether Generation Y students' approaches to finding information and their views on libraries have changed with the easy use and accessibility of Web search engines. Much of the literature on Generation Y comes from North America.

2.1.1 Information seeking behaviour of Generation Y

There is a common perception that a considerable amount of research on the information seeking behaviour of undergraduate students has been undertaken. Combes (2007: 18) identifies shortcomings in the literature of information seeking behaviour of Generation Y. She claims that the research only focuses on asking students about their use of technology, for example, Think Aloud's or research observing students while they are busy with information seeking. In Combes' (2007: 18) opinion, research should focus more on questioning young people on how they make use of technology to find information. Information seeking behaviour plays an important role in how we cope with problems in our everyday life information seeking (Case, 2002: 5). Generation Y students view the virtual space of the World Wide Web as part of their information

universe. Today's students do their research outside what the library has to offer on their Website mainly because, on library Websites, the different resources are categorised into different areas. For example, students have to separate their searches. To search for a book the student must search in the library catalogue, to search for an article on a specific subject the student must identify the relevant database, which is in another area on the library Website. Moreover, not all databases on library Websites have access to full text articles and Generation Y students expect to have quick access to information. Students prefer to search on Google and bypass the more sophisticated and time-consuming searching on library Websites (Lippincott, 2005).

Students have become confident in the use of technology to find information. However growing up in the era where the Internet plays a role in everyday life information seeking means that students should acquire the necessary cognitive skills for finding and evaluating information, as well as intellectual and emotional factors to perform problem-solving tasks associated with information seeking (Weiler, 2004: 49). Research by the British Library and JISC (2008) explains that the information seeking behaviour of the young people of today is mostly "horizontal, bouncing, checking and viewing of nature". Horizontal information seeking, best known as bouncing, describes an activity when users only visit one or two Web pages and seldom go back to these Web pages (Nicholas and Rowlands, 2008: 128). Navigation explains the time students spend on library Websites without finding the information they are looking for. Viewing is an activity where the students browse through titles, content pages and abstracts of electronic books (E-books) or electronic journals (E-journals).

2.1.2. Generation Y Characteristics

Although there is adequate literature available on the characteristics of Generation Y, research literature on the characteristics and expectations of Generation Y and how it would influence the library is still not in abundance. Generation Y prefer working in teams and they can combine teamwork with technology skills and digital literacy skills

(Skiba, 2003; Oblinger & Oblinger, 2005). They are also quite at ease with multi-tasking while using a range of technologies (Combes, 2007: 17; Freifeld, 2007: 8).

A Web-based survey conducted in February 2008 wanted to determine whether newly enrolled students studying Economic and Management Sciences at Stellenbosch University were Generation Y and exposed to technology while growing up. A total of 1370 newly enrolled Economic and Management Sciences students was asked to participate in the survey. The completed response rate of the survey was 23.3%. The students were asked if they had computer access at home and whether they consider themselves to be at ease with the use of new technologies. The findings revealed that 88% of the students were comfortable with the use of new technologies. In addition to this, 80% of the students frequently use a wide range of information technologies. Approximately 78% of the students grew up with a computer in the home.

The findings demonstrate that the majority of students who took part in the survey had used technology and have interacted with information systems during their formative years (Wessels and Steenkamp, 2009: 1043). Generation Y are tech-savvy and considered to be the digital natives. Farkas (2007: xxii) explains that Generation Y grew up with the Web and that the Web was raised with Generation Y. In contrast with the above findings, a study conducted by the University of Waikato (2008) claims that 80 % of students out of a sample of 555 students surveyed under the age of 25 were not familiar with technology as assumed by older generations. Further findings by this survey suggests that, although Generation Y is satisfied with the use of technology, it does not necessarily mean that they are experienced in applying technology to learning or that they are search savvy (Gunn, 2005: 14).

2.1.3. Variables that influence information seeking behaviour of Generation Y students

2.1.3.1 Critical thinking and Cognitive development

Research has shown that Generation Y lacks basic critical thinking and information literacy skills. Critical thinking is widely discussed in literature since it is fundamental to the learning process and cognitive development, which encompasses information seeking. Scott and O'Sullivan (2005:23) describe students' lack of cognitive skills when using hypertext links. A report done by the Educational Testing Service (ETS), (2006) confirms the findings by Scott and O'Sullivan (2005) stating students' lack of critical thinking skills when the ETS Company assessed 6,300 students in a literacy evaluation study. Assessment were done by measuring student's capabilities when they have to apply their critical skills to define, access, manage, integrate, create and communicate information in hi-tech surroundings. The preliminary findings reveal 52% of participants were able to determine the objectivity of a Website whilst 65% could determine trustworthiness of the Website. From the 6,300 students who assessed by ETS, just 40% used the multiple search terms option to narrow down their search results. Therefore, librarians should become aware of students' lack of knowledge in coursework and academic assignments. Weiler (2004: 46) makes claims that critical thinking and cognitive skills are not up to standard because of Generation Y's lack of reading. Generation Y students may be computer literate but not necessarily information literate.

Higher Education South Africa (HESA) commissioned the National Benchmark Tests Project (NBT, 2009) to conduct a study assisting HESA with identifying the educational needs of the students. The study revealed that first-year students do not have the necessary literacy skills when they enter the university for the first time. Approximately 13,000 first-year students participated in the assessment tests. They studied in academic disciplines such as commerce, education, engineering, health sciences, humanities, law and science and enrolled at University of Cape Town, University of KwaZulu-Natal,

Rhodes University, University of the Western Cape, Stellenbosch University, and University of the Witwatersrand and Mangosuthu University of Technology. They took the assessment tests by the National Benchmark Tests (NBT) in February 2009. Almost 47% of the 13,000 students who took the tests on academic literacy showed that they possessed the required literacy skills to enter the university. The results show that 46% of the students who participated in this test have intermediate skills while 7% of the students only possessed basic skills. Chen (2003: 30) says that literacy skills is a requirement for the efficient and effective accessibility of information, critical evaluation of information and the use of information in a creative and accurate manner. Holliday and Qin (2004: 359) proposed that librarians should teach higher-level thinking skills to students.

2.1.3.2 Various study approaches in students' information seeking behaviour

Research by Jannica Heinström (2005) investigated the different types of study approaches that influenced the information seeking behaviour of students. According to Heinström's (2005: 232) research, Generation Y students' study approaches could be categorised into a "deep approach", a "surface approach" and a "strategic approach". Students adapting to the deep study approaches are seeking the deeper meaning in the information found by them. Deep study approach students use their critical and logical skills and are able to apply new knowledge to existing knowledge (Entwistle and Tait, 1996:101). They would make use of the various types of resources to find information, for example: books, journals, databases, newspapers and the Internet. Students who fitted the surface study approach profile memorised information without understanding the information. Even this student just wants to pass the exam or complete their academic assignment without having to be interested in a course module or assignment topic (Entwistle and Tait, 1996:101). Characteristics of students with a surface study approach are that of having a fear for failure and bad time management, not good characteristics for the information retrieval process (Ford, Miller and Moss, 2001: 1050). Therefore the argument made is that students, who do not use effort for finding information, would find it difficult to analyse information in a critical way or making

selections on which information to use for an academic assignment. The student adapting to the strategic study approach finds it easy to prioritise work and manage time. This student would take his or her studies seriously (Entwistle and Tait, 1996:101). When this student engages in information seeking activities, she/he would be able to identify the search problem and make use of the different search terms to find information.

2.1.3.3 Discipline differences

In Whitmire's (2002: 631) view library and information science research has identified that disciplinary differences play a role in information seeking behaviour. Covi (1999:297) for instance investigated information seeking behaviour of academic researchers in the molecular biology, literary theory, sociology and computer science field and their use of digital libraries. The study revealed that there were differences in the search strategies by researchers in these various study areas and in the type of materials selected by them. Therefore, the information seeking behaviour of undergraduate students would vary from faculty to faculty (Whitmire, 2002: 631). To prove this viewpoint Kerins, Madden and Fulton (2004) viewed the information seeking patterns of undergraduate engineering students in their final year of studies at two Irish universities. They found that engineering students preferred to use information resources that did not require a lot of effort, in this case the Internet. They concluded that students studying engineering see the Internet as a tool providing quick access to information. In Whitmire's (2002: 637) opinion students studying humanities, business sciences, social sciences and education carry out more information seeking activities than students studying hard sciences such as engineering students. Students in social sciences, humanities and business sciences submit more assignments that are academic while students in hard sciences work more with mathematical formulas. Therefore these findings should be beneficial to reference librarians working in disciplinary areas such as social sciences or physical sciences. Students in applied physical sciences such as engineering do not ask for help from the reference librarians. Whitmire (2002: 637)

suggests that reference librarians assist students in the physical sciences by giving bibliographic and referencing advice.

2.1.4. Generation Y students and their use of search engines

The popularity of Web search engine use, by Generation Y students could mainly be because of ease of use, easy access and speed. In support of this statement Sadeh (2007: 307) explains that users prefer to search the more common and easy to learn search engines. Furthermore, Web search engines display their material in various formats, which includes online books, online articles, images, videos and conference presentations.

Recent studies such as the Pew Internet study (Jones and Fox, 2009) reveal that teenagers and Generation Y Internet users between 18 and 32 years of age would most likely use the Internet for entertainment and for communicating with friends and family. This study draws its results from telephone interviews conducted by Princeton Survey Research Associates International during August 2006 and August 2008. This study further reveals that over half of the Internet users are between 18 and 44 years old. In addition to this, findings from a Pew Internet and American Life Project (Fallows, 2005) reveal that Generation Y students are reliant on Web search engines when searching for information. The findings by the Pew study confirmed young people's preference for the Internet as a tool to find information in a 2008 study done by the Digital Future Project. The results of this study showed that 80 % of young people between the ages of 17 and older used the Internet to find information.

The Future Connect Report (Cranston and Davies, 2009) investigated the growth of Social Network Sites (SNS) such as Facebook, MySpace and Orkut. Participants in this report were between 15 and 25 year of age. The majority of young people in South Africa use mobile phones to access SNS such as Mxit. South Africans between the age group of 16 to 24 years old prefer Mxit (61%) to Facebook (27%). There were approximately 87 000 Facebook users in 2007 between the ages of 16-24 in South Africa. The same year the number of 16-24 Mxit users in South Africa was already 5.2

million. About 2.44 million South Africans had Internet access in South Africa. In 2007 there were 43.244.6 South Africans without Internet access. Only a third of South Africans own computers and connect to the Internet. Although the number of South Africans accessing the Internet by mobile phones are almost double. Mxit as (SNS) dominates the South African market. Mxit offers a cheap online messaging service. In 2007, the number of South Africans who subscribed to mobile networks showed a growth rate of 90.1%. Males in South Africa dominate Internet usage. Between 2007 and 2008, there was a rise of 3.2 % of male Internet users. Approximately 16% more males in 2008 between the ages of 18 to 35 years old had access to the Internet. South African women preferred sending text messages. In South Africa, more young people access the Internet via mobiles in comparison with those accessing the Internet on their computers. Most South Africans accessing the Internet on their mobile phones are younger than 30 years old. In 2008, the most popular SNS were Facebook, Youtube, Blogger, Gumtree and Flickr.

A study by EDUCAUSE Center for Applied Research (ECAR) regarding undergraduates and their use of information technology found that 80 % of students in this sample owned laptops, 53.8 % had a desktop and one third of the sample owned both a laptop and desktop. Students owning a laptop increased over a period of three years from 65.9 % in 2006 to 82.2 % in 2008. A sample of 27,317 freshmen, seniors and community college students at 98 colleges and universities in the United States were used (Salaway, Borreson and Nelson. 2008). Data gathered by means of a Web-based survey and focus group discussions. The ECAR study further revealed that the usage of Internet capable cell phones increased and that younger students used the Internet primarily for social networking, text messaging and instant messaging. The section on information technology skills and information literacy showed that participants of this study see themselves as Internet savvy and 79.5 % assumed that they use the Internet effectively and efficiently when searching for information. The assumptions were put forward by Brown, Murphy and Nanny (2003:386) when they mentioned students portray themselves as being confident since they conflate their technological abilities

with information literacy. However, the ETS (Educational Testing Service, 2006) study that tested 6,300 students on their information and communications technology abilities found that when students search large databases only 50 % of the participants used a search strategy that eliminates irrelevant results. Griffiths and Brophy (2005:545) provide us with evidence that 45 % of students use Google as their primary source of information when locating information. The findings by Griffiths and Brophy (2005: 539) reflected that students searching behaviour most dominated by how they look for information on the Internet. Generation Y students are reliant on television and Internet resources and are using it as their primary source of information (Weiler, 2004: 46). Generation Y students see the Internet as an important part of their lives for doing class assignments and that their use of technology plays a major role in education as well as their personal lives (Holliday and Qin, 2004: 357).

A further argument supporting students' fondness of search engines can be seen in the Brophy et al (2004:10) report on the EDNER user testing study. A three year project of the Centre for Research in Library and Information Management (CERLIM) at the Manchester Metropolitan University and the Centre for Studies in Advanced Learning Technology (CSALT) at Lancaster University, in which university students participating on the EDNER user testing study had to complete 15 information seeking tasks. The students did not get any assistance on how to find the answers in order to complete the given information seeking tasks. The EDNER user testing study revealed that the majority of students participating in this study preferred search engines to help them find information in completing information seeking tasks. The EDNER user testing study (2004) further showed that 45 % of their users often make use of Google to search for information. The popularity of Google as the most used preferred search engine can be seen in the EDNER user testing study (2004), the OCLC study (2006) concerned with student perceptions of libraries and information resources and a study done by Banwell, Ray and Coulson (2004: 311). Google is fast, reliable and it offers relevant information (Brophy et al, 2004) while library Web pages in particular online catalogues and databases are difficult to navigate (Lippincott, 2005).

OCLC conducted two studies. The one study (2006) focused on the perceptions of college students when they use library and information resources. The purpose of the study was to understand student perceptions of libraries and library branding. A total of 3,348 participants from six countries, namely Australia, Canada, India, Singapore, United Kingdom and United States as well as an additional 396 college students from the United States with ages ranging from 15 to 57 both undergraduate and graduate students completed an online survey. The replies from participants in the United States between the ages of 14 to 17 years of age and not yet in college were included, since it was assumed that these young people would become the prospective students of the future. The results of the survey point out that 89% of college students begin their information searches with a search engine and only 2% of students choose a library Web site to begin their information search. It can also be assumed that younger people do not see library sponsored resources as being intuitive and for this reason would turn to search engines such as Google or Yahoo that could present them with basic solutions to fulfil their information seeking needs (British Library and JISC, 2008).

Research by Becker (2003: 92) and Selcher (2005: 179) agrees with the OCLC study (2006) that students have a profound dependence on using search engines such as Google to find information. The OCLC (2006) study reveals that 72% of college students see search engines as their preferred choice when searching for information, while 14 % of the surveyed college students selected the bricks-and-mortar library and only 10 % of college students would use the online library Web site as their preferred choice for searching information. The 2002 OCLC study on the information habits of college students undertaken to aid librarians in changing the student information seeking habits provides evidence that 73% of the participants surveyed prefer the Internet rather than visiting the library that proves again the predominance use of search engines to find information. The results drawn from 1,050 college students surveyed in the United States.

In a Libqual survey (2005) conducted by the Stellenbosch University Library and Information Services, postgraduate students revealed problems with accessing electronic resources from their home or office. Undergraduate students who completed the survey identified the library as a physical space to be inviting. The purpose of the survey was to find out what students and staff expect from the library and how the library could improve its overall services. Approximately 1546 participants completed the web survey. The majority of the participants who completed the survey were undergraduate students (58%) and postgraduate students (26%). Other findings from the study revealed that students wanted workshops on how to search the library databases.

An exploratory study by Fast and Campbell (2004: 140) investigated how university students perceive and relate to Web search engines in comparison with Web-based Online Public Access Catalogues (OPACs). The study involved 16 students, 8 were first-year undergraduate students while the remaining 8 were graduate students studying library and information science. The participants had to carry out searches on Google as well as the university library OPAC. The findings of the study revealed that although students were aware of the inherent problems present in Web searching, they still had a preference for Web searching. Therefore the assumption can be made that students to a large extent prefer using search engines as confirmed by studies done by (Browne, Freeman and Williamson, 2000 and Pew Research Center, 2002). The amount of time students have to complete an academic assignment might as well be an additional factor on why students prefer to use search engines such as Google. Valentine (2001:112) claims that students find information in a chaotic way due to their use of known resources such as the Web where emphasis on Web use is often synonymous with speed and convenience. It has been observed by Armstrong *et al.* (2001:255) that students have difficulties explaining their search strategies as well as the resources they used and how they access it.

Weak search skills by students give rise to poor results which could undermine the effectiveness of search engines (Armstrong *et al.*, 2001: 256). A study of Web search behaviour of university students at the University of the Punjab by Malik and Mahmood

(2009) shows evidence of the common use of basic search terms and minimal use of advanced search terms.

Nonetheless, not a lot of evidence is available in the literature, which would give an insight in how experienced young people are with information searches (Williams and Rowlands, 2007). Research revealed that unsophisticated methods being used for Web information seeking and yet users, including Generation Y students, are pleased with how search engines work and they are somewhat self-assured when they are busy with information seeing on the Web (Martzoukou, 2008: 183). Fallows (2005) explains that students discontinue information searching once they found an answer to their information search.

Johnson, Griffiths and Hartley (2001) draw attention to users' inability to use advanced search methods or complex queries when conducting an information-seeking search. Brophy and Bawden (2003: 73) in the EDNER study support this contention as the participants in the study used the advanced search function less. The Ciber (2007) study provides evidence of the user's lack of using advanced search strategies because students expect that search engines would provide them with a better understanding of their search queries.

Chen (2003:40) states in a study done with children and youth that they find it difficult to create search terms, especially in the case when the original search terms inadequate when searching for information. Students are more reliant on keyword searching. Although keyword searches show more results this does not necessarily means that students carry out successful searches (Gunn, 2005: 14). Martzoukou (2008: 192) confirms the findings by Gunn (2005: 14) that students prefer keyword searching when they conduct information seeking tasks. Further studies on Web information seeking done by Jansen et al (1998: 6) and Martzoukou (2008: 193) describe users' inability to use Boolean and advanced search features on the Web. These results were drawn from

analysing 51,000 Web queries by an estimated 18,000 users. Poor searching skills could therefore result in the repetitive use of the same search terms.

Chen (2003:32) also found that children and youth have difficulties in narrowing their information searches. Therefore, making the statement students would use the same easy searching methods in other Web-based services (Markland, 2005: 21). In Markland's (2005: 21) opinion students information seeking hardly ever takes them further than the first few pages of the search results obtained from search engines. Krug (2006: 22) argues that people do not want to spend time reading the content on Web pages. They would rather scan for words or phrases which catches their eye. Krug (2006: 22) identifies time constraints as a reason for scanning Web contents. A study by Craven and Griffiths (2002: 183) where two independent studies were done on two different groups of students (one group visually impaired and the other group not visually impaired) revealed that only one page of the total hits were being viewed. Spink, Jansen, Wolfram and Saracevic (2002:108) agree with the findings by Craven and Griffiths (2002: 183) by pointing out that "one page only" viewing is a rising trend by users. Wang, Hawk and Tenopir (2000: 238) examined 24 Master students' cognitive and affective abilities when they were searching the Web. The findings of the study confirmed that students only examined the first page of search results. Wang, Hawk and Tenopir (2000: 248) proposed Web interfaces developed in such a way to accommodate the "poor mental models" of the student. The study also revealed that students with negative feelings about information seeking were students showing signs of anxiety, which is playing a role in how willing the student would be to pursue an information seeking activity.

The term "infobesity" used by Bell (2004: B15) suggests that students' searching habits are similar to those of consuming fast food. In this case Bell (2004) claims that Google is supplying users with a junk information diet. Bell (2004: B15) points out that students want quick access to information, regardless of the quality or the type of

information they seek.

Students want the option to be able to modify the information they find to meet their own individual needs (Weiler, 2004: 50). They want options in this case to get access to information but also to learn at a time and place of their choice.

A focus group study by the University of Idaho Library (Young and Von Seggern, 2001:160) investigated information seeking types outside the library context. Although the study were conducted by librarians the aim was to examine the broader scope of information seeking behaviour and attitudes. The study by the Idaho University Library primarily focused on undergraduates and their information seeking behaviour outside the library context. The study revealed students desire to find information on their own but also that they would rather talk about their information needs with a person. With this study, students expressed their needs for information seeking. These needs included ease of use, trustworthiness, accuracy, currency and cost. Moreover, students also voiced their frustration with network problems. Students' frustration with network problems were also voiced by Oblinger and Oblinger (2005) when pointing out that students have a low tolerance for problems and delays with non-working technology.

It can be seen from the above literature that Generation Y prefer the use of search engines since they were brought up in an Internet environment and for this reason would regard the Internet as a useful tool when searching for information. Even though students portray confidence in using computer equipment or engagement in social networking activities they lack critical and analytical skills (Ashling, 2008:22). Information seeking behaviour in itself is a complex task and students that grew up in a Generation Y era are exposed to more complex cognitive, physical and social behaviour that entail competence and skills that changes continuously (Ashling, 2008: 22).

2.1.5 Libraries and the changing technology has changed traditional library work in order to comply with the information needs of Generation Y students

Today, the Web has millions of users. Sadeh (2007: 307) explains that the availability and use of Web search engines, Internet tools and services, Google Scholar and Windows Live Academic, made the library user less reliant on library support. The popularity of Web search engines based on their characteristics to be easy to learn and use, to provide easy access and speed. Information on the Web seems to be almost free and Web search engines display their material in various formats, which includes online books, online articles, images, videos and video conference presentations.

What is more is that even the external competition such as OpenURL and Google Scholar seems to have adapted to library like features to lure students away from libraries (Sadeh, 2007: 309). The enhancements on Web search engines could create expectations for Generation Y students to have access to information, from anywhere in the world, at any time.

The current library environment is under the spotlight because of the increased availability of information and communication technology brought upon by the growth of the Internet and the profound role it is playing in modern society. In addition to this, library systems have become more complex and the focus has always been on the library system instead of the user (Kuhlthau, 2004: 1). Technology and the development of Web search engines have influenced our information seeking activities and turned more users, in this case also our Generation Y students, to the use of Web search engines (Martzoukou, 2008: 182; Fallows, 2005; Morrissey, 2003). Technology has become a way of life for Generation Y students and Web search engines such as Google regularly used for information seeking (Bawden and Vilar, 2006: 346). Libraries should learn from Google that it is not just a search engine or a software company but a company that designed information search results in a way that made it accessible and ready to be used. Indirectly this makes Google a competitor for libraries (Mi and Nesta, 2006: 412). Libraries should concentrate on user satisfaction. Users have expectations of library Web pages based on how they find information on the World Wide Web (WWW).

Generation Y students have a choice. They can decide how and where they want their information, whether they want easy access to information and which resources they can make use of to find information. In Gardner and Eng's (2005: 410) opinion, students emerged from an age of mass customization turning them into digital leaders in their own digital universe and their learning environments are without boundaries. Generation Y students are an important target group for any librarian because these students come to the library with expectations which are set by their experiences from the Web searching. Today's library users portray sophisticated Web skills, and have confidence in their ability to search independently for information. Generation Y students have choices and with their high reliance on Internet resources they want their search results to be shown in accordance to relevance ranking. Therefore, the relevant hits should be listed first. Libraries should consider simplifying their information retrieval systems and services to win Generation Y students back to the library. As Generation Y demands instant access to information (Walker, 2006: 10) a complicated library information retrieval system would not address the needs of Generation Y students. Moreover, libraries seem to have lost their role of being the main information provider to students and academic staff as well as the public (Fialkoff, 2006: 8).

The librarian's role is not only to satisfy student information needs, but also to equip them with the necessary skills to utilise the information that is available online if students have shortcomings in searching and evaluating resources. Libraries should undertake regular studies in information seeking behaviour. It should be considered a standing practice, in order to understand students and potential student's information needs in order to design Web sites, portals, information literacy training programs, Web-based information retrieval systems and online education that suit the needs of Generation Y students. Kuhlthau (1994) suggests that students need to understand the complexities of information seeking and librarians should intervene by guiding students to seek meaning from a deeper understanding from the obtained information. British Library and JISC (2008) explain that libraries should change from counting statistics to becoming more involved by observing the information seeking behaviour of its users.

Given (2002: 27) argues that students prefer using sources they deem reliable and which they are comfortable using. Libraries that adapt to Web 2.0 technology tools would attract Generation Y students (Morphy, 2007). Web 2.0 technology tools are a combination of user expectations, assessing user information behaviour seeking needs, anticipating user needs and satisfying user needs. Web 2.0 technology is accessible on a wide range of devices and integrates with other services such as E-Commerce applications and Web portals. With Web 2.0 technologies, the user is put in the centre and the library services are built around the user. With Web 2.0, libraries move beyond the notion of 'libraries without walls', in which an online library experience is being created. Libraries without walls could extend in such a way by providing Generation Y students with a service where and when they need it and without them having to browse for information on other Web search engines. When a library is visible, it can support its users in making adequate choices when searching for information. Users feel rewarded with a search well done. Users could utilise the virtual space created by Web 2.0 tools to build relationships, chats and to interact with users over the globe (Barsky and Cho, 2007: 59). Students are confident with the use of Web 2.0 technologies such as Instant Messaging (IM), blogs, online news, online bookshops and Web search engines as revealed in the 2006 OCLC study. Libraries that do not opt to change their services or developing a more user-friendly Web interface for their libraries could end in losing Generation Y students who may bypass library Web pages in order to try out commonly used Web search engines. Therefore, it is important that academic libraries should listen and understand what it is their user needs.

2.1.5.1 Libraries and Google

The above literature has shown that Google is a widely used information-seeking tool amongst Generation Y students. Libraries should simplify their current Web search engines to function like Google. Bell (2005: 68) argues that it is not a difficult option to adapt library systems to user needs. Students feel comfortable with their Google style searching. Libraries should therefore use Google as an example to build intelligence into their library systems (Bell, 2005: 68). The above literature also shows that Generation Y

students would rather go for speed and simplicity. The information seeking of Generation Y students are limited to doing simple keyword query searches. Google Scholar is a commonly used information-seeking tool and a practical move for libraries could be to create links from Google Scholar to the full text articles that are available on subscribed databases and to make information resources available where users can find it.

2.1.5.2 Libraries and Web 2.0 social search

Social search is an application for people to sort and locate information on the Web (Richman, 2007: 19). According to Sherman (2006), social search could be shared bookmarks or the tagging of content with explanatory labels to create a well-developed look by merging human intelligence with the algorithms of the computer. As a tool of Web 2.0 technologies, social search is beneficial to libraries for improving information retrieval and relevance. Libraries could use social search applications in order to design search engines that specifically concentrate on topics that could produce many hits as in the case of a Google or MSN search. Nonetheless, social search is not a substitute for online searching. It is an application used to enhance the searching experiences of users. For example, course pathfinders used in the Short Loan Departments of libraries.

2.1. 5.3 Libraries and social networking

Social networking sites such as the popular Facebook, Flickr, MySpace and LibraryThing are amongst the developments of Web history in the twenty-first century. The Pew Internet and American Life Project (2006) conducted a study about the influence of social networking on the Internet. The results of the study came from conducting telephone interviews between October 23 and November 2006. The sample was drawn from 935 young people between the ages of 12 and 17. The young people were asked about their use of social networking sites (SNS). The Pew Internet and American Life Project (2006) found that young people used social networking sites to create their profile and to connect their profile to other profiles with the intention of creating explicit personal networks. The study also revealed that 55% of the young people have a profile on either MySpace or Facebook. Other reasons shows that 91% of

the participants use social networking sites to stay connected with friends whereas 82% use social networking to stay connected with friends they do not see too often. Generation Y was brought up with the Internet and could be part of four online communities (Topper, 2007: 379). Therefore, academic libraries should act upon meeting the needs of Generation Y students instead of waiting for Generation Y students to come to the library. Charnigo and Barnett-Ellis (2007: 27) did a survey of 127 US academic libraries on how librarians feel about Facebook. Their findings reveal that academic librarians are aware of social networking sites such as Facebook and that Facebook could be used as a tool to communicate and provide library services to students. Other respondents viewed Facebook as a disruption and as part of an obsession with no role to play in the academic library profession. It is important that libraries should include global competitiveness as part of their strategic goals. Libraries should rate their performances against the standards of the successes of social networking sites such as MySpace and Facebook.

2.1.5.4 Libraries and Digital Reference Services

Social networking technologies are playing major roles within the academic library settings. This being done in such a way that reference or faculty librarians could easily adapt to the use of blogs, wikis, discussion boards, chat programs, Instant messaging (IM) and virtual reference services were linked to social networking technologies. However, the traditional reference services such as requesting reference help by sending an email to the reference or faculty librarian are still the general norm. Vendors who supply libraries with new services have developed new software to enable the reference or faculty librarian to make the content of information accessible to the end user's Web browser while conducting an online reference interview with the user. Instant Messaging (IM) as a communication tool allows librarians to communicate with students. Librarians could chat to students in real time and provide them with quick answers. For example, the reference or faculty librarian can send full text articles to the user during this online reference interview, or instructions on how to access a specific database or electronic journal (E-journal). In other cases the reference or a faculty

librarian may display online presentations live to the user in order to demonstrate how to navigate a specific Website, or instructions on how to use the library online book catalogue. One of the characteristics of a reference service is that of a chat service. For example, a chat button is visible on the library's Web page and students have to click on this button to start a chat with the librarian. When a student clicks, the chat button a Web-based chat interface appears online on the library's Web page and the student and librarian can chat by typing messages to each other. Students do not have to download any software to chat with librarians and librarians can even co-browse or send recommendable Websites to the student. Since the information need of today's student has changed rapidly, it is in any academic library's best interest to consider 24-hour reference services.

The Stellenbosch University Library and Information Service have a Question Point service, where students can email their reference requests to a librarian. One librarian is responsible for the Question Point service. However, all requests sent by students in the night are only responded to the following day. Dunlap (2008: 136) suggests that librarians investigate the possibilities of having a partnership with librarians in other time zones in order to provide online reference services on a continuous base.

2.1.5.4.2 Voice over Internet Protocol (VoIP)

Although IM and co-browsing are exceptionally good virtual referencing tools, students are only able to communicate their reference queries in a tiny chat window. VoIP enables the librarian to speak to the student with the use of Internet telephony. The reference interview between the librarian and student takes place through an IP network instead of telephone lines. Skype is an example of a free Internet telephony service where users need a headset or a built-in microphone (Farkas, 2007: 163). VoIP makes it possible for students to contact librarians free of charge from anywhere in the world. This service could be beneficial for distance Generation Y students who are living far from the university library. VoIP used by some libraries in North America. VoIP is a money saving option for libraries.

2.1.6 Libraries and mobile phones

Today students even use their mobile phones to access the Internet. Generation Y students use their mobile phones to surf the Web or to communicate with their friends and family (Farkas, 2007: 167). Device independence is a requirement to make the viewing of Web sites accessible regardless whether it is computers or mobile phones. Library content such as library catalogues could be accessible on mobile phones. Students would be able to go to a shelf and search for a call number of a book instead of waiting for a computer to become available in the library to access the library catalogue. An example of mobile phone catalogues are innovative interfaces which provides a mobile adaptation of the Millennium catalogue called AirPac.

2.1.7 Libraries and podcasting

Podcasts connect iPods with broadcasting and the audio broadcasts be heard on a MP3 player. Podcasting is one of the latest social software tools available (Farkas, 2007: 181). Libraries can use podcasts as a marketing tool to promote new databases or to give students instructions on how to access databases. Podcasting is also useful to announce books new books or library training programs. In the case of Library Week, libraries can use podcasts to provide students with news or the services libraries are offering during Library Week.

2.1.8 Digital libraries and bibliographic instructions

In order to promote library services amongst Web savvy students it is recommended that academic libraries should provide users with assistance on better navigation skills to equip users on how to navigate in a rapidly changing information resources environment, better known as information literacy (Dunlap,2008: 136). Students enter the university not knowing what services the academic library can offer them. Today's student should be confident in the use of computer hardware and software to gain access to library resources in order to find information successfully in the present digital environment (Dunlap, 2008: 137). Librarians no longer use chalk, transparencies or physically explain the purpose of a printed index in library instruction classes.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Motivating for qualitative constructivist methodology to test the validity of Kuhlthau's ISP

This study is a qualitative case study since it allows for a small number of participants (Holloway, 1997: 142). The purpose of qualitative research is to describe, explore and interpret data. Qualitative research based on holistic beliefs (Denzin and Lincoln, 2000: 440) and the ISP is a holistic approach because it includes actions and feelings experienced by an individual when searching for information. The researcher found interviews, journal writings and questionnaires to be the appropriate methods to investigate information seeking behaviour.

A qualitative study is beneficial when describing phenomena (Creswell, 1998: 53) in this case information seeking behaviour. The researcher followed the interpretivist paradigm since the researcher wanted to share the participants' information seeking processes and interpret their social reality and how they make sense of them (Creswell, 2007: 21).

The ISP model, often described as constructivist theory, has its roots in the earlier information seeking models of Kelly (1963), Belkin (1980: 138) and Taylor (1968: 182) which focuses on the cognitive aspects of information seeking. Therefore, the qualitative paradigm and methodology used in this study are appropriate. Kuhlthau (1993: 9) claims that the process of information seeking is a learning process. From the user's point of view, the ISP can be seen as a constructivist activity in order to find meaning from information, which could broaden their framework of a specific problem or topic.

The Personal Construct theory as developed by Kelly (1963: 46) provides groundwork for Kuhlthau's (1991: 362) ISP model that explains the information seeking process and draw light upon the affective and cognitive characteristics of a user's information seeking activities. Kelly's Personal Construct theory identifies aspects such as thinking

and problem solving to understand how people construct their personal life. Decisions made by the individual leads to an understanding to make sense of everyday life. Kelly makes the argument that people are scientists (Kelly, 1963: 47) to predict and control circumstances in their everyday life. The ISP model easily adapt to the construct theory since the Personal Construct theory illustrates how individuals feel when they want to make sense of the information they found. The ISP can thus be seen as and holistic approach to information seeking because it includes the actions and feelings presumably experienced by an individual when searching for information. The assumption made by Kelly (1963: 58) is that since individuals have to get used to the constructions in their life they affected by psychological factors such as anxiety. Anxiety in this case is fundamental to information seeking. Anxiety caused by uncertainty and confusion, which is essential when an information seeker wants to move between objective and subjective information. In Kuhlthau's opinion, (1991: 366) uncertainty is caused by a need or a lack of insufficient knowledge to understand a problem.

These uncertain feelings would remain present until the individual selects to either discard what came known or to pursue and use this knowledge to find meaning to what has come to known. In this case, the individual develops some theory, which can either be tested or appraised in order to integrate this new knowledge with the individual's existing frame of knowledge. The significance of Kelly's research is seen when attention is drawn to the extent feelings play in the knowledge construction process and by doing so connecting individual experiences to construction.

Belkin (1980) emphasised the cognitive factors, which explained the constructive approach of information seeking by means of the ASK model. According to Belkin (1980: 136), the formulation of an information search commences when the user be confronted with an information problem. The user becomes aware of the gap in his or her existing knowledge regarding a specific problem or topic. Filling the gap with acquired knowledge becomes the information need. The level of knowledge obtained by the user increases as the information seeking process develops. In Belkin's opinion, (1980: 136) information need has a beginning phase, the phase where the user

encounters a problem and an ending phase when the user fulfils the knowledge gap. The ASK model firstly draws attention to the link between what the user is looking for when the person inputs a query in an information retrieval system and secondly the information the person expects to be retrieved from an information retrieval system

The Question-Negotiation and Information Seeking in Libraries model as developed by Taylor (1968) focuses mainly on the user and user interaction with the librarian. Taylor (1968: 182) explains during the early stages of information searching users become conditioned and they formulated their need for information in the form of questions. Taylor (1968: 182) identifies the four levels of an information needs as such; the visceral need which is a real but confined information need. The conscious need when the individual becomes aware of his or her needs. The third need identified as the formalised need, formulates the need in words while the compromised need is the need that communicates the question to an information retrieval system or the librarian. In this case, a user may enter the library uncertain of where to find information on a specific topic or even what tools to use to search for this information. When the user approaches, the librarian a reference interview starts to form in which case the librarian asked the user certain questions regarding the information he or she needs. This makes it possible for the user to make a connection with their already existing knowledge. During the final stages when the user already anticipated the gap of knowledge, the input of the initial query starts to formulate. Although the user predicts a possible outcome to the initial query the librarian still needs to negotiate a possible or in certain cases the most likeable outcome.

The constructivist approach becomes an active component of a learning process linking facets of individual experiences together. Moreover, constructivist philosophers assert that students develop their critical thinking skills and problem solving skills when they build upon their existing knowledge to create new knowledge to broaden their frame of knowledge within a specific subject matter.

Kuhlthau (1997: 711) claims that constructivism suits the digital library environments well and that librarians play an important role when giving learner's assistance inside a constructivist framework. Librarians in particular would find insight in how library users seek information and how they look for information. As the constructivist approach is a learning theory, libraries should operate within a learning environment. In a recent article concerned with learning, Kuhlthau points to research that shows that her model applies to the electronic environment as much as in the printed environment (Kuhlthau, Heinström and Todd, 2008).

Kuhlthau's ISP relies heavily on cognitive learning theory since information seeking is a constructive, sense-making process where the user presumably feels uncertain and anxious during the beginning stages of information seeking. The ISP can be seen as a form of construction driven by the feelings of individuals in their quest to make sense from the acquired information. Kuhlthau (1997: 711) explains that people would go to great extents to find information and in doing so need the necessary competence to find meaning and understanding in the information they seek. The constructivist approach makes it possible for Generation Y students to expand their abilities in how they approach situations when applying it into their real life. Thus, students gain knowledge to identify situations, which are important to them, to create new meanings and to describe these meanings in an authentic manner.

Kuhlthau's ISP is a constructivist approach to information seeking integrating the affective, cognitive and physical aspects visible in the six information-seeking stages of the ISP model (Kuhlthau, 1994: 58). The affective, cognitive and physical aspects are visible in the following stages: initiation, selection, exploration, formulation, collection and preparation. The initiation process is the beginning stage of the ISP. The initiation process identifies a student's lack of knowledge regarding a specific subject or topic. The cause for this lack of knowledge could also be that a lecturer wants the students to write a research assignment and the task of the student is to search for relevant information. The selection stage is the process, which is involved with the topic selection of an assignment. Following the selection stage is the exploration stage.

Kuhlthau explains that users experience the exploration stage as the intricate stage (1997: 713) and that librarians might misinterpret the exploration stage with the collection stage where the user already gained the necessary information, which would help him or her towards the presentation stage. In Kuhlthau's (1991: 366) viewpoint, the user portrays feelings of confusion and uncertainty during the exploration stage. The formulation stage focuses on sense making and the gap in knowledge. During this stage the user becomes more involve to fulfil his or her gap in knowledge by reading more about the acquired knowledge. The next stage deals with collection and collecting relevant information. The presentation stage is the last stage. The presentation stage ends the information search and draws upon the final results of the search.

Two elements are present in a constructivist approach. Firstly, humans construct their own unique world and secondly humans are seen as an entity. Humans show emotions such as thinking, feeling and acting when they are involved with learning activities (Kuhlthau, 1994: 58). Two learning theories are visible in the constructivist paradigm. The two learning theories draw upon the models of Piaget (Wadsworth, 1971: 10) and Vygotsky (1978: 35). Piaget's theory of cognitive development suggests that humans need first to make sense of information and only then they would be able to interpret and understand the information. Vygotsky (1978: 36) believes that when humans bring their past and future together this would lead to the construction of memory.

The constructivist approach presumably describes a rich and descriptive narrative and it portrays rich pictures of human realism (Pickard and Dixon, 2004). A person builds their own social world by means of communicating with each other (Holloway, 1997: 145). A further claim by Holloway (1997: 146) is that the constructivist approach is an always changing process and in Kuhlthau's (1994: 58) opinion not easy or with a smooth transition but instead a rather worrying an intimidating experience. Researchers that accept the constructivist approach believes in simultaneous findings from both the researcher and those being research.

3.2 Research Design

3.2.1 Introduction

The researcher wanted to find out whether Generation Y students conform to the stages of the ISP with regard to thoughts, feelings and actions as pointed out by Kuhlthau in the ISP model. The researcher decided to use interviews, journal writings and questionnaires as the appropriate methods to investigate information seeking behaviour of Generation Y students. The researcher's intentions were to use Kuhlthau's data-gathering methodologies as seen in her longitudinal doctoral study of American students that led to the ISP model. However, time constraints affected the duration of the study. The result was a briefer interaction time between researcher and participants. The duration of the study reduced from six weeks to three weeks.

The researcher decided to focus on students studying at the Arts and Social Sciences Faculty as well as students from the Faculty of Economics and Business Sciences Faculty of the Stellenbosch University. The choice of faculty was based on research done by Whitmire (2002: 637) who found that undergraduate students from soft disciplines such as social sciences and economics and business sciences take part in more information seeking activities than students from other faculties. Although the researcher planned to approach students in the library where the researcher is currently working, the students were reluctant to participate in a study during the second semester because of their class schedules and the students approached were unsure whether they could commit to the study. The researcher decided to approach supportive lecturers to find students to participate in the study. Emails sent to all lecturers teaching at the Arts, Social Sciences and Faculty of Economics & Business Sciences explained information seeking behaviour of Generation Y students broadly. The researcher requested six students for a qualitative study. In the email, the lecturers were asked for details about academic assignments during the second semester, especially during August 2009. Unfortunately, the researcher only received feedback from two lecturers who expressed their optimism for such a study.

The official semester commenced on 20 July 2009 and the researcher invited by the two lecturers to speak to the students during formal lectures. The researcher arranged a suitable time to visit and speak to the students. The researcher gave a brief overview of the ISP and Generation Y. The lecturers' of both courses asked the students to submit their names after class as well as their student numbers and contact details which were then emailed to the researcher. At first only two students decided to participate voluntarily in the study. Luckily, this changed and more students wanted to become involved in the study. The researcher assumed that since the students had to submit major assignments by 24 August, the students would find it beneficial to find out more about their own information seeking abilities in order to help them with future assignments.

3.2.2 Participants

Students were briefed on the term Generation Y. They were asked if they fit the profile Generation Y Students. The voluntary participants were in their second year of academic studies. Three students were studying Political Science and three Economics and Business Management sciences.

3.2.3 Journal writings

The researcher requested participants to keep a journal. Journals writings document written evidence. This made it an effective data collection method. Journal writings are convenient, accessible to the researcher and an unobtrusive method to find information (Creswell, 2003: 186). Participants had to record the sources they had used and the procedures they followed when searching for information. Participants had to mention whether the resources were useful or not useful. At the end a disappointing two journals handed in.

3.2.4 Lecturers' assignment assessment

The lecturers who volunteered to mark these assignments were to have given feedback to the researcher on the relevancy of the sources used. The lecturers expected to provide

feedback on the students' bibliographies, and their ability to synthesize and write lucidly. Unfortunately, the lecturers failed to respond.

3.2.5 Preliminary meeting

The researcher made an appointment to meet with the six students who agreed to participate in the study. At the meeting, the students briefed about the study, researcher's expectations and the duration of the study. Participants had to complete a consent form and informed about their rights. The researcher requested permission to use a tape recorder and told participants that they be given transcriptions of their interviews. Participation in this research project would be voluntary and participants allowed to withdrawn at any stage of the research process.

3.2.6 Interviews

The researcher conducted individual interviews of 45 minutes. Participants were interviewed at the J.S. Gericke library, the workplace of the researcher, during lunch hours. The intention of the interviews was to collect the required knowledge about Generation Y's attitudes when they are searching for information related to completing an academic assignment (Powney and Watts, 1987:5). The interviews were recorded.

The researcher followed the seven stages of an interview process as set out by Kvale and Brinkmann (2009: 19) which were as follows:

- Thematising: explaining the purpose of the interview and what would be explored.
- Designing: Outline the process and the ethical component of the study.
- Interviewing: to conduct interviews.
- Transcribing: construct written text of the conducted interviews
- Analysing: To find meaning in the written text.
- Verifying: To ensure the reliability and validity of the written text.
- Reporting: To present or report what the researcher has found to others.

3.2.6.1 Transcribing Interview responses

Transcribing of interviews known as an interpretive process (Kvale & Brinkmann, 2009: 177) where the researcher expected to make sense of the oral interview. Since the interview process is an oral dialogue where the participant and the researcher are present, the dialogue needs transcribing in written form. In this case, the transcription process is seen as the empirical data of the conducted interview. Kvale and Brinkmann (2009: 178) explain the concept of transcribing to be a translation, starting with the oral discourse (interview) and ending with the written discourse (transcribing). The researcher used Audiotranskription, free Internet software for the use of audio transcribing.

3.2.6.2. Meaning condensation as a method to analyse transcribed interview data and content analysis

Meaning condensation involves a process of summarizing long statements by compressing the statements into more concise statements (Kvale & Brinkmann, 2009: 205). For example, the researcher rephrased the statements of the participants. After completion of the transcribing process, transcribed interviews read. This enables the researcher to get a sense of what the participant is saying. The researcher identified main themes “meaning units” within the transcribed text. The researcher used the most used themes (main themes) in the transcribed text and rephrased it into plain and easy to understand text. The themes (meaning units) applied to the purpose of the study. Descriptive writing described the information seeking behaviour phenomena of Generation Y students in their everyday life information seeking.

3.2.7 Questionnaires

The questionnaires were emailed to the lecturers and students who participated in the study. The first questionnaire to the students consisted of close ended and open-ended questions. By using open-ended questionnaires the researcher, expected that the participants would give their own answer to the question. Open-ended questionnaires provide a frame of reference where participants are allowed to give answers, input and their opinions about their views on information seeking (Burns, 2000: 572). With the

first questionnaire, the researcher attempted to find out how students search for information when doing an assignment.

A second questionnaire was emailed to the students after the lecturers' failed to provide input at the "presentation stage". Another reason for the second questionnaire was that only two out of the six students kept journals. The questions were mostly close-ended questions. With close-ended questions, the participant expected to select an answer from a list of possible answers as provided by the researcher (Babbie, 2008: 272). To allow for all possible outcomes in closed ended questions, the researcher added an extra category for "Other" (Babbie, 2008: 273). With the follow up questionnaire, the researcher attempted to find out whether students went through the six stages of Kuhlthau's ISP.

Questionnaires were emailed to the two responding lecturers after the submission date (24 August) of the academic assignment. The lecturers who were to complete the questionnaires taught Political Science (Arts and Social Sciences Faculty) and Economics (Economic and Business Sciences Faculty). The types of questions related to procedures the students used for gathering their information and how frequently the library used as well as whether the submitted assignments were vague, general or clearly focussed. Questionnaires to the lecturers were in the form of close-ended questions. The interviewer uploaded the questionnaires on SurveyMonkey, free Internet software for creating questionnaires.

3.2.7.1 Pre-testing of questionnaires

The researcher uploaded a pilot questionnaire on SurveyMonkey. A group of student friends were asked to complete the questionnaire. Their interpretation of the questions provided a guideline on how the participants would answer the questions without errors.

3.2.7.2 Analysis of questionnaires data

The questionnaires consisted of open-ended and close-ended questions. Participants had to select an answer from a list of possible answers. Participants had to mark their

preferred choice from the list with a right mark tick. The returned questionnaires were numbered, saved and printed out. The researcher used a blank questionnaire to count the responses to the questions and the responses from each category calculated into percentages. The total of the responses to the questions were calculated. The researcher divided data from the open-ended questions into different theme categories in relation to the research questions. MSWord and Excel used to develop graphs and tables to illustrate the discussion of the results in the next Chapter. The comments and suggestions sorted and classified to separate the common patterns and themes. The researcher used some of the comments and suggestions as quotes to illustrate points made and to give readers access to the voice of the respondents.

3.2.8 Conclusion

Interviews, journal writing and questionnaires were the most appropriate instruments for the study. The unit of analysis were students at Stellenbosch University. The researcher attempted to study undergraduate students' information seeking and its relation with the Stellenbosch University Library and Information Service resources. The researcher also wanted to study other resources students used to find information and suggestions they have for improving the resources and services of the Stellenbosch University Library and Information Service.

CHAPTER FOUR

RESEARCH FINDINGS

4.1 Introduction

This chapter presents and discusses the findings of the questionnaires, interviews and journal writings in an attempt to understand the information seeking behaviour of Generation Y students. Six students representing an equal number of male and female students participated in the study. The researcher focused on students studying in academic disciplines such as Political Science, Economics and Business Management (See Figure 4.1). These are the areas identified as soft disciplines and where students conduct the most information seeking activities (Whitmire, 2002: 637) such as having to search for information to write an academic assignment.

Table 4.1: Gender and academic disciplines

Academic discipline	Male	Female
Political Science	2	1
Economics	1	1
Business management	0	1

Source: Compiled by author, 2009

4.2 The sequence of the research analysis

The research analysis would follow the sequence:

4.2.1 Data analysis of first questionnaire

4.2.2 Discussion of the interviews

4.2.3 Discussion of the journal writings

4.2.4 Analysis of the of the second questionnaire

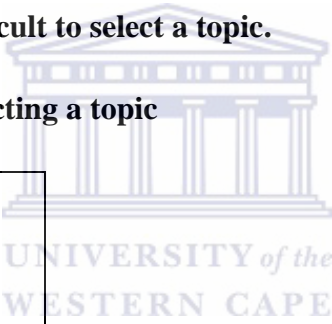
4.2.5 Data analysis of the questionnaire to lecturers

4.2.1 Data Analysis of the first questionnaire

In questions 1-4, students had to rate on a scale from 1-5, 5 being almost always and 1 being almost never, their responses to the respective questions.

QUESTION 1: I find it difficult to select a topic.

Table 4.2: Difficulty in selecting a topic



Difficulty in selecting topic	Student response rating
Almost never	0
Seldom	3
Sometimes	2
Often	1
Almost always	0

Source: compiled by author, 2009

The results can be interpreted as follows: three participants seldom have difficulties to select a topic. The results provide evidence that the students who participated in the study do not have a problem with selecting a topic for an academic assignment.

QUESTION 2: I scan for the availability of information on a topic, before I make a selection.

Table 4.3 Scan for information

Scan for information	Student response rating
Almost never	1
Seldom	1
Sometimes	2
Often	2
Almost always	0

Source: Compiled by author, 2009

In terms of scanning the availability of information before selecting a topic four participants often or sometimes scan the availability of information before selecting a topic. Two participants seldom or never scan information before making a topic selection.

QUESTION 3: I always consider changing my topic, because I could not find the relevant information to use.

Table 4.4 Consider changing topic

Scan for information	Student response rating
Almost never	2
Seldom	0

Sometimes	2
Often	1
Almost always	1

Source: compiled by author, 2009

With regard to the question whether participants would change their topic because they could not find relevant information to proceed with their topic, it is unlikely that the participants would consider changing their topic. Only one participant would almost always or often change the topic.

QUESTION 4: I always feel uncertain about the topic I have selected and I do not know what is being expected from me.

Table 4.5 Uncertain about topic

Scan for information	Student response rating
Almost never	0
Seldom	2
Sometimes	3
Often	0
Almost always	1

Source: compiled by author, 2009


Three participants sometimes feel uncertain about their selected topic and what is being expected of them. While two participants seldom feel uncertain of what is being expected from them. Uncertainty is usually present during the first three stages of the ISP. The Exploration stage which is the third stage of the ISP is considered to be the most difficult stage. After a student selects a topic, the next phase for information seeking would generally be to start collecting information. In order to collect

information a student must read and understand the information they came across during their search. It is then expected that a student divide the information into what is relevant and useful and information which is not related to the search topic should be discarded. This can only be done when a student applies critical thinking skills to evaluate information. When a student feels that the information found does not match their expectations, the student might appear in doubt or uncertain about their search strategy

QUESTION 5: State the criteria you have used in judging relevance of documents searched and used in solution to your information problem? (Max 3)

(Participants had to choose amongst the abstract, title, introductory sentences, conclusion and author)

Table 4.6 Criteria in judging relevance



Criteria for judging relevance	Student response rating
Abstract	1
Author	1
Introductory sentences	2
Title	3
Conclusion	0

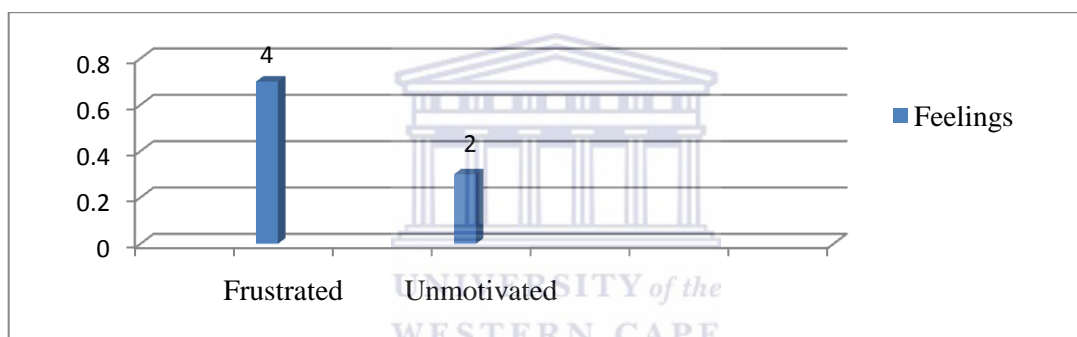
Source: compiled by author, 2009

Three participants chose the title as part of the criteria to select relevance, while two participants would read the introductory sentences in order to evaluate the relevancy of documents searched and used to answer an information problem. One each participant would either read the abstract or select the author as part of their criteria to select relevance. The results show that students search for information with the similar title to that of their topic. Often, students enter the exact phrase of the topic title as part of their

search strategy. The title could be misleading and not necessarily relevant to their topic. Reading the abstract or consulting a familiar author was the least chosen criteria of relevance. The need to educate students how to search and explore information and how to use this information to make sense of it all and addressed by librarians.

.QUESTION 6: How do you feel when you search for the relevant information, but have problems with finding information? *Participants were expected to draw upon their own feelings when seeking information.

Figure 4.1 Feelings when the search does not produce relevant information



Source: Compiled by author, 2009

Four participants felt frustrated, while two participants felt unmotivated. The participants who felt unmotivated because of their difficulties to find information also considered to change their search strategy which can be seen as a positive response for an unfulfilled search. The researcher would like to point out that it is clear that students need to be taught how to develop their critical skills in order to distinguish between information since four participants portray feelings of frustration. Frustration is one of the common feelings present when students do not know how to search. This might result in submitting bad assignments because they do not know how to search or how to differentiate between useful and not so useful information.

QUESTION 7: When searching for information for an academic assignment, do you ever feel at some stage like giving up on your search for information, and why?

Table 4.7 Giving up on the search

Reactions to information search	Student response rating
Give up	4
Not give up	2

Source: Compiled by author, 2009

Four participants would consider giving up on their search for information because the time they spend on searching for information does not deliver the necessary results. Two participants would not give up on a search and would consider asking for help. The researcher is concerned that four participants would give up on their search for information. This would reflect on student's inadequacy to find information and when they stumble upon unreliable information results, students would appear doubtful about their search capabilities, their choice of topic, the information they found and their own abilities to finish an assignment.

QUESTION 8: Do you ever feel uncertain about the outcome of your submitted assignment

Table 4.8 uncertain about topic

Feelings about outcome	Student response rating
Unsure of outcome	4
Do not feel uncertain	1
Do feel uncertain	1

Source: Compiled by author, 2009

Four participants mentioned that sometimes they were not sure what the outcome of the submitted assignment would be. One participant did not feel uncertain about the outcome of their submitted assignment. If this is the case then the researcher may draw the conclusion that the students did not understand the topic or they did not understand the information used to complete the assignment. In order to make sense of the information a student must apply their cognitive abilities to make sense of the information. Therefore four participants were dealing with feelings of uncertainty.

QUESTION 9: You have your chosen topic and are busy searching for information on your selected topic. Where would you begin? E.g. Library Web page, faculty librarian, or search engines?

Table 4.9 Where do participants begin their searches?

First place to search for information	Student response rating
Faculty librarian	1
Library Webpage	2
Search engine	3

Source: Compiled by author, 2009

Three participants would first consult search engines in the search for information. The library Web page or the faculty librarian is not considered as significant in the search for information. These results confirm the results from the OCLC (2005) study which reveals that 72% of college students see search engines as their preferred choice when searching for information, while 14% of the surveyed college students selected the bricks-and-mortar library and only 10% of college students would use the online library Web site as their preferred choice for searching information.

QUESTION 10: Library Web page or Google? Why would you make this choice?

Table 4.10 Choice between Library Web page and Google

Choice between Library Web page or Google	Student response rating
Library Web page	1
Google	5

Source: Compiled by author, 2009

Five participants prefer Google to the Library Web page. The literature used for this study provides evidence that Generation Y students prefer Google as their first choice when searching for information. The participants gave reasons for their preference of Google saying Google is easier to use and the information on Google is more up to date. The results to this question support the literature in Chapter 2 that Google is the preferred choice when students search for information.



4.2.2 Discussion of the interview data

QUESTION 1: What was the first thing that came to mind when you heard the announcement in class that you have to write and submit an academic assignment?

The majority of the participants in this study were either stressed or they tensed themselves before even searching for information to write the assignment. Some of the participants even mentioned Google as a tool to search for information while answering this question. The researcher would in particular reflect on the words of one of the participants who mentioned that he or she is not "scared" of writing an academic assignment. The researcher sums it up that searching for information to complete an

academic assignment could be a stressful experience, especially in the case of participants not finding the information they are looking for.

QUESTION 2: How do you formulate a topic in order to search for information on it?

The researcher noticed that each one of the participants used different ways to formulate their search strategies. Participants used either mind maps or the highlighted text from the lectures. Although one of the participants did mention "I try not to use more than three words when I search for information on Google". In the researcher's opinion the participant would experience some problems with finding information if he or she limits their keywords to only three keywords. This also means searching on Google. Neglecting to use sufficient keywords could lead to unsatisfactory search results.

QUESTION 3: Do you have difficulties to find keywords when you formulate a search?

Slightly more than half of the participants answered this question with "depends on" the Website, or how much the participant knew or how straightforward the assignment was.

QUESTION 4: Which sources do you consult for finding information?

Google seems to be the preferred choice for finding information. The literature which was used in the study provides proof that Google seems to be the popular choice amongst Generation Y students when they search for information. In this case results had shown that more than half of the participants would use Google and that the Google search engine is easier to use. This would also confirm the literature used in the study that students see the usability of the library Web page as too difficult and complex.

Students tend to go for the easier search engines. Google seems to be the preferred search engine to use. The remainder of the participants would use the library.

QUESTION 5: How relevant is the information you retrieve from the sources you use?

The researcher noticed that all the participants in the study found their information relevant. More than half of the participants believed in the relevancy of their results when using a search engine to find information. Although a smaller number of participants did mention that the library played a role in them believing that the information they found was relevant.

QUESTION 6: Do you ever feel at some stage uncertain about the information you use?

Some interesting comments were given by the participants when asked about whether they felt uncertain about the information they use. One of the participants who took part in the study mentioned that "I never thought about the relevancy of information. I just believed that the information on the Website is trustworthy". Another participant wanted to believe the relevancy of the search results because the thought of requesting assistance from the librarian was too stressful. The following comment was also made by a participant "when I get information it looks very promising, but when I start writing the essay it's probably not as relevant".

QUESTION 7: How do you feel when you cannot find what you are looking for?

The majority of participants in the study felt frustrated when they could not find the information they were looking for. Slightly fewer participants expressed their thoughts of giving up or losing confidence in the search and that the submitted essay would not be

good. Only a small percentage of the participants interviewed would go back to the research phase.

QUESTION 8: When would you approach the librarian for help?

The researcher noticed that the participants were not too keen to approach the librarian for assistance with their information seeking difficulties. In this case the researcher is under the impression that half of the participants in the study would only seek the help of the librarian as their last resort. The last resort in this case could be when the due date of handing in an assignment is approaching fast. However a smaller number of participants in the study would either avoid using the library or not ask the librarian for help at all. Only one of the participants interviewed mentioned first seeking the help of the librarian.

QUESTION 9: Do you feel confident using the library Web page?

More than half of the participants did not feel comfortable with the Stellenbosch University Library and Information Service Web page. In particular one participant who expressed feeling "lost" and "frustrated" with using the Stellenbosch University Library and Information Service Web page. Another participant mentioned the difficulty of navigating the library Web page.

QUESTION 10: Which do you prefer search engines or library Web pages?

Google seems to be the favourite search engine amongst Generation Y students. Each participant in the study would use or would prefer Google above the Stellenbosch University Library and Information Service Web page. The participants felt that Google was easy to use and user friendly. In addition to this, one of the participants mentioned

that he/she were brought up with Google from a very young age. This would confirm the findings in the literature used in the study that Generation Y grew up with the Internet.

QUESTION 11: What is the role of the library in fulfilling the information needs of Generation Y students?

During the preliminary meeting the six participants were briefed about the term Generation Y and Generation Y characteristics. Despite this, the researcher finds some contradictory answers with the question whether the library fulfills the needs of Generation Y students. Although almost half of the participants agreed with the statement that the library fulfills their needs as Generation Y students, they also mentioned that they were not aware of all the services the library has to offer. Another participant who also answered yes that the library does fulfill the needs of Generation Y students said that the library doesn't have enough computers for the students to work on. The participants, who felt that the library does not fulfill the needs of Generation Y students, mentioned that the library is merely a place to study or that there are not enough computers in the library. The participants also expressed that to find information on the library Web page seemed like such a complicated process.

QUESTION 12: Do you think the library can do something better? How would you redesign the library Web page? Do you have any suggestions on information literacy training?

The participants made several suggestions on the library Web page and information literacy training. Suggestions about the Stellenbosch University Library and Information Service Web page was that of the current font size being too small and that it should be made larger and more spacing used between the texts. The participants further suggested that the current interface should change to an interface similar to that of Google. Information should be categorised. For example books and articles and databases and E-

journals (electronic journals) relating to a specific subject matter should be categorised under one subject heading/category. With regard to library training, the participants want something which is more visual like an interactive program teaching information literacy on the library Web page.

4.2.3 Discussion of the journal writings

The following journal writing responses were emailed to the researcher. The researcher has to stress that only two students complied with documenting their information seeking experiences. Participant 1, who kept a journal record of information seeking experiences, said the following: “do not have a clue how the Stellenbosch University Library and Information Service Web page is working”, and that the participant’s “friends are encountering the same problems with difficulties figuring out how the library Web page works”. The participant is a second year student who is also doing some third year modules. According to the participant all the information on the library Web page should be accessible but the participant is under the impression that you cannot have access to all the information on the library Web page. In the researcher’s opinion the participant is probably referring to SFX articles which in some cases do not have a full text link. The participant currently relies heavily on the Internet for information seeking and stresses that some of the information on the Internet is not at all that accurate. It has been expressed by the participant that he or she had to build up courage in order to ask the Faculty Librarian for help to explain to him or her how to understand the library Web page. The participant observed that the current library Web page is too complex to use and he or she wonders how off campus students cope with the current library Web page. A further comment made by the participant was the fact that the library Web page looks rather “posh”. The participant suggests that the library Web page should be more user friendly with a Google interface. There are too many options and the participant wondered why the articles on certain databases were in alphabetical order and not arranged according to the most recent date. Another problem

the participant experienced was all the print options in order to get access to a particular article he or she wants to access.

Participant 2 felt frustrated during an evening of research to find information to start with an academic assignment. The participant could not find any relevant information while searching for information on the library databases. The participant admits to having used the “correct” keywords. However the participant also mentioned that there was a stage where he or she could find some information but had difficulties to access a particular E-journal (electronic journal). The participant decided to use Google Scholar, but stresses that he or she felt frustrated when she or he could not access again the specific article on Google Scholar.

4.2.4 Data analysis of the of the second questionnaire and discussion of each question

The second questionnaire was designed because data collection from the journal writings were not sufficient enough and also because of the non-responses from the lecturers. In the follow up questionnaire the researcher wanted to test the relevancy of the ISP and questions were formulated in such a way in order for the researcher to gain information about Generation Y. Data were collected by asking the participants 6 closed ended questions.

QUESTION 1: Which of the following statements describe the beginning of writing and gathering information for an academic assignment best?

Table 4.11 How to start the search process

Starting search process	Student response rating
Puzzled how to search	1
Uncertain about search	2
Limited knowledge of topic	3

Source: Compiled by author, 2009

Three participants answered this question by saying that they have limited knowledge about the topic. This provides evidence that some information seeking activities starts with a lack of knowledge of a particular subject or having a gap in existing knowledge. The information seeker needs to identify this gap in knowledge and explore and discover information in order to fulfill this gap in knowledge. The same can be said about the participants in the study who confirm their limited knowledge about the topic and that they need to identify and explore for information in order to fill the gap to complete their academic assignment.

QUESTION 2: How did you feel when you identified and selected your topic?

Table 4.12 Feelings after topic has been identified

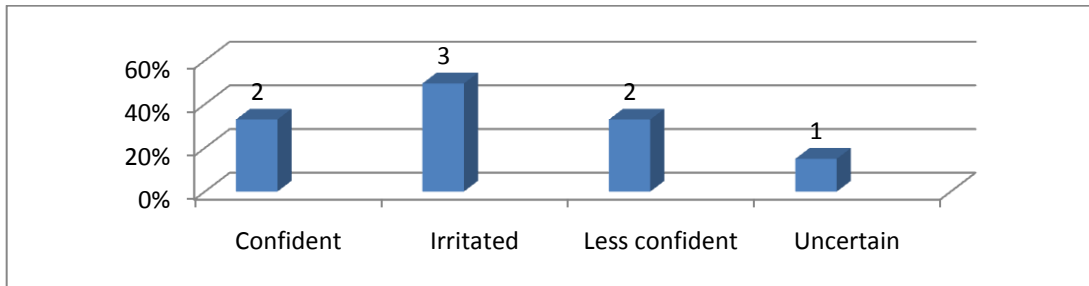
Feelings after topic has been identified	Student response rating
Positive about topic	2
Unsure about topic	1
Interested in topic	3

Source: Compiled by author, 2009

Five of the participants felt either positive or interested in the topic. Although the participants were worried about their lack in knowledge of the particular topic they selected. The researcher can make the assumption that the participants chose their topics because of having an interest in the topic.

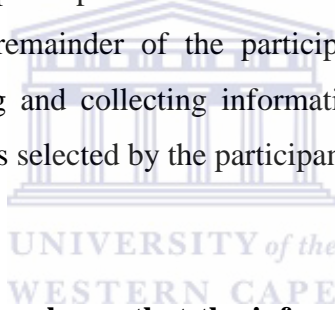
QUESTION 3: What are your general feelings about exploring and collecting information on your selected topic? Participants could choose between feelings such as: uncertain, disappointed, irritated, less confident, have problems to find adequate information

Figure 4.2 Feelings on exploring and collecting information



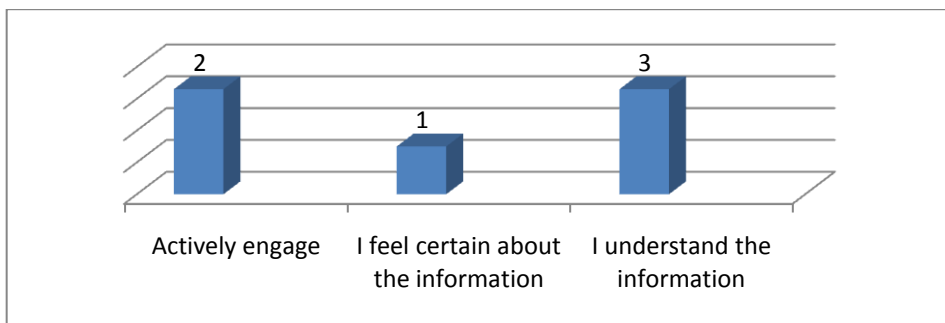
Source: Compiled by author, 2009

The participants were asked to express their general feelings about exploring and collecting information. They could choose any five of the above feelings. The results revealed that three of the participants had felt irritated and had problems finding adequate information. The remainder of the participants felt less confident and or disappointed about exploring and collecting information. Confidence and uncertainty were also some of the feelings selected by the participants



QUESTION 4: When do you know that the information you have found on your selected topic finally makes sense?

Figure 4.3 Knowing when the information makes sense

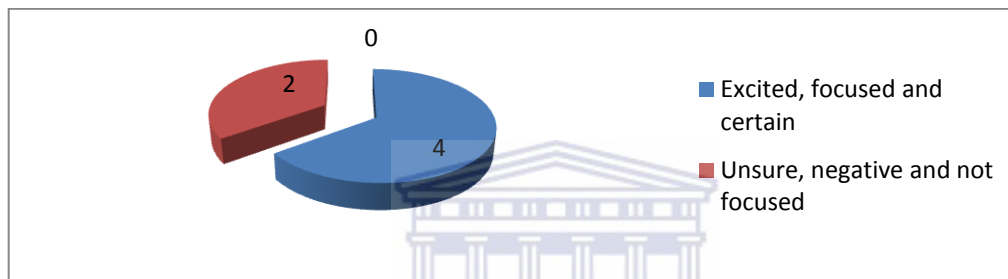


Source: Compiled by author, 2009

The participants chose “actively engaged” and “understand the information” to answer the question. “Actively engaged” and to “understood the information” is when the participants know when they finally make sense of the information they have searched for.

QUESTION 5: How do you feel about collecting data for your selected topic?

Figure 4.4 Feelings about collecting data

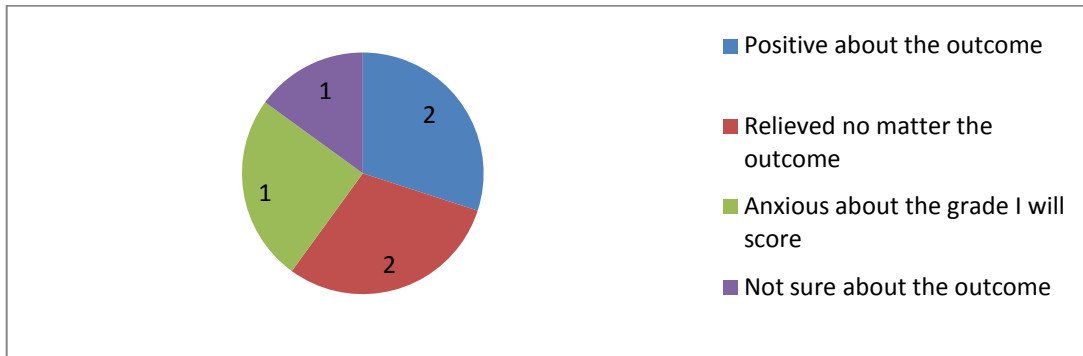


Source: Compiled by author, 2009

Four of participants felt excited, focused and certain when they became involved with searching for data on their selected topic. Two participants experienced being unsure, negative and not focused with the data they collected for their topic.

QUESTION 6: How do you feel when you have completed your assignment and presented your assignment for evaluation?

Figure 4.5 Feelings after completion and presenting assignment



Source: Compiled by author, 2009

Four participants were either positive about the outcome or relieved no matter what the outcome of their submitted assignment. Two participants were either anxious or not sure about the outcome of their submitted assignment.

4.2.5 Questionnaires to the lecturers

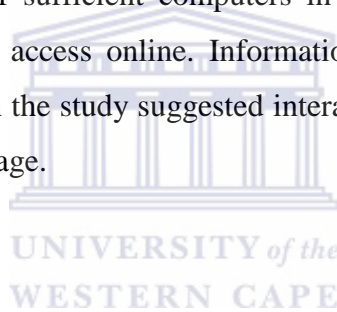
Unfortunately the lecturers did not complete the questionnaires. Therefore no valid evidence can be provided from them.

4.3 Conclusion

The researcher needs to stress that although there was a response rate of 100 % for the first and second questionnaire to the students and recorded data, the journal writings and questionnaires to the lecturers delivered a disappointing response rate. Working with the available data collected, the researcher tried her best to point out certain patterns. Information seeking behaviour is a complex activity. Generation Y students should therefore not confuse that being able to use a search engine to search for information is similar to that of using the library Web page. Google seems to be the most preferred search engine. The literature used for this study confirmed Google's popularity and that it's the most preferred search engine as seen in the EDNER user testing study (2003),

the OCLC study (2006) concerned with student perceptions of libraries and information resources and a study done by Banwell, Ray and Coulson (2004: 311). Participants in the study gave reasons for Google's popularity because it is easy to use and it gives fast access to information. The library Web page is considered to be complex. The researcher refer to similar findings in the literature about Google and how fast and reliable it is and how it offers relevant information (Brophy *et al.*, 2004) and that library Web pages are too difficult to navigate (Lippincott, 2005).

Although a few participants would consider help of the Faculty librarian they also mentioned that they were reluctant to go back to the Faculty Librarian for help. Other frustrations were the lack of sufficient computers in the library and that the library collection is too difficult to access online. Information literacy training was seen as boring and the participants in the study suggested interactive online information literacy training on the library Web page.



CHAPTER FIVE

INTERPRETATION OF FINDINGS AND HOW IT RELATES TO THE ISP

5.1 Introduction

In this chapter, the findings of the study summarized and discussed the context of the research questions. The researcher attempts to find tentative patterns because not all the participants complied with the returning of the questionnaires or journal writings.

5.2 Summary of findings

This chapter interprets the data gathered and summarised in Chapter 4 in an attempt to give answers to the research questions of this study. Chapter 1 identifies the research questions as follows:

- 5.2.1 What are the information seeking behaviours of Generation Y students as they undertake their academic assignments?
- 5.2.2 Do Generation Y students conform to the information seeking processes of the Information Search Process (ISP) model?
- 5.2.3 Does their reliance on information technology affect the information seeking process model built by Kuhlthau?
- 5.2.4 What is the role of the library in fulfilling the information needs of Generation Y students?
- 5.2.5 What is a Generation Y student's perception of or experiences of the Library's information retrieval systems?

5.2.1 Information seeking behaviour of Generation Y students as they undertake academic assignments

In an attempt to answer this research question, the researcher made use of the data gathered from the questionnaires, journal writings and interviews. The researcher asked the participants questions which would reflect on the Initiation and Selection stage of the ISP. The participants were asked to describe in general how they feel about writing academic assignments and selecting a topic for the academic assignment. It would appear that the participants in the study did not necessarily have difficulties with selecting a topic since the students had to choose from a list of topics set by their lecturers. Participants were more concerned about writing the assignment and their lack of knowledge of their selected topic. The search engine Google seemed to play a predominant role in the first two stages of the ISP since the participants were already wrapping their thoughts around Google as the first place to search for information on their selected topic.

5.2.2 Do Generation Y students conform to the information seeking processes of the Information Search Process (ISP) model?

The six stages of the ISP begin with the *Initiation* stage, the stage where a lack of knowledge being identified. Generation Y students in particular those who participated in this study identified their lack of knowledge when beginning to search for information on a specific topic. The second stage of the ISP is the *Selection* stage. In this case, the Generation Y students in the study had to select a topic to complete an academic assignment. The results revealed that the participants did not necessarily find it difficult to select a topic, but that they did stress that they did not know how to go about writing the assignment. During the Initiation and Selection stage Generation Y students might appear somewhat lost. These feelings could be due to their lack of knowledge and their insecurities on what to do next. These insecurities reflected in their concerns about writing the assignment.

The third stage is the *Exploration* stage. The Exploration stage is the stage where the student becomes involved with searching or exploring the information. In Kuhlthau's

(1997: 713) opinion the Exploration, stage is the most difficult stage in the ISP. The participants in the study had feelings of frustration and felt somewhat irritable with exploring information. They also expressed that they would consider giving up on their search for information on their topic. Students who stumble upon unreliable information results would appear doubtful about their search capabilities, their topic of choice, the information they found and their own abilities to finish. The researcher drew upon findings of Kuhlthau that participants in the study experienced some intense feelings of uncertainty. Uncertainty in the participants' caused by problems in finding information or to find meaning in the information. The librarian should make Generation Y students aware, when they approach them for help as a last resort, that uncertainty is a common experience in the search process. When searching for information about which you have little knowledge of, you would naturally feel uncertain about the information. Should librarians or educators neglect to mention that uncertainty is a common experience in information seeking, it would lead to intense feelings of uncertainty, which could trigger anxiety and frustration to a point where the student wants to quit his or her search or consider changing their topic.

The fourth stage of the ISP is the *Formulation* stage. During formulation, students should be able to make sense of the information found. The Formulation stage tests the cognitive abilities of the student. This is the stage where a sense of meaning formulated from the information found. Kuhlthau (1997: 720) regards the Formulation stage as the most significant stage in the information seeking process. If the student encounters difficulties in formulating meaning from the information, the student could find that uncertainty would remain present and not decrease as he or she proceeds to the next stage of the ISP. The researcher found that the Generation Y students participating in the study understood the information they found for their topic and that they were becoming actively involved and interested in their topic.

Following the Formulation stage is the Collection stage. The student should become focussed The findings as set out in Chapter 4 reveal that the participants felt excited, focused and certain about the information they collected for their topic. The final stage

of the ISP is the *Presentation stage*. During the Presentation stage, the students submit their completed assignment to the lecturer for evaluation. They would then receive a mark for the submitted assignment.

The researcher can confirm that Generation Y students from the Stellenbosch University experienced the thoughts, feelings and actions commonly experienced in Kuhlthau's ISP.

5.2.3 Does their reliance on information technology affect the information seeking process model created by Kuhlthau?

Yes, to a certain extent. Although research proposes that students experience the same emotional and constructive stages when information seeking is done in the digital environment (Branch, 2003: 59), Generation Y students reliance on information technology does affect the information seeking process model which was built by Kuhlthau. Generation Y students are accustomed to surfing the Web to find superficial information. There is also an expectation that finding results on the Internet is quick and relevant. Students tend to bypass the exploratory stage. During the exploratory stage, students' expected to have investigated the information they have founded and to have formulated a focus (Kuhlthau, Heinström and Todd, 2008). If this were not done and students commenced to the stage of finding and collecting information for an assignment, they do not grasped the information they have found to form basic a background knowledge. This might cause uncertainty in their information seeking process. Kuhlthau, Heinström and Todd (2008) confirmed that students who skipped stages of the ISP would not feel positive about the outcome of their assignments. The same question posted by the researcher in the first questionnaire as well as the second questionnaire about how students felt about the outcome of their assignment. In the first questionnaire more than half of the participants (Table 4.6) surveyed were not sure about the outcome of their submitted assignment and in the second questionnaire the participants had various answers to the question. The researcher could not find the proof that the participants were positive about the outcome of their assignment (Figure 4.7). Therefore, the researcher assumes that that the students did not understand the topic or

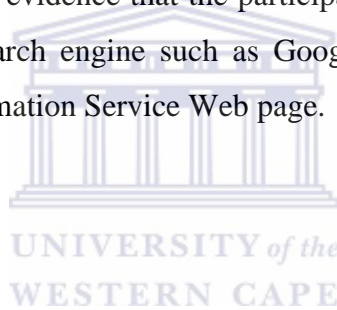
they did not understand the information they used to complete the assignment. In order to make sense of the information a student must apply their cognitive abilities. More than half of the participants were still uncertain. The results of the second questionnaire to the same question about how students feel about the outcome of their assignment are as follow: less than half of the participants in the study felt positive about the outcome of their results. The remaining participants were either unsure about the outcome or anxious. The researcher assumed that not all of the participants in this study went through all the stages of the ISP as identified by Kuhlthau. Should this be the case a higher certainty outcome would have been present and the students went through all the stages of the ISP. However, the participants experienced uncertainty caused by problems of finding information or finding meaning in the information. Generation Y students should be made aware by the librarian when they approach librarians for help as a last resort that uncertainty is a common experience in the search process. When searching for information, especially in the case of information you have little knowledge of, you would naturally feel uncertain about the information. Should librarians or educators neglect to mention that uncertainty is a common experience in information seeking it would lead to uncertainty that could trigger anxiety and frustration to a point where the student wants to quit his or her search or considers changing their topic?

5.2.4 What is the role of the library in fulfilling the information needs of these Generation Y students?

The Generation Y participants from this study found the role of the library wanting. The researcher reflects on comments made by the participants in the study who regard the library only as a quiet place to study. The participants' were rather critical about the Web page of Stellenbosch University Library and Information Service's. The participants pointed out the lack of computers for students in the library. Information literacy training mentioned as boring and time consuming. Almost half of the participants in the study preferred that information literacy training taught with a visual interactive program on the library Web page. In the opinion of the participants of this study, they would merely use the library as a place to study for tests or examinations.

5.2.5 What is a Generation Y student's perception of or experiences of the library's information retrieval systems?

The researcher has mentioned that the Web page of the Stellenbosch University Library criticised. The participants in the study considered the library Web page as too complex or too difficult to navigate. Another comment made by one of the participants was that he or she felt “lost” or “frustrated” with the Stellenbosch University Library and Information Service Web page. In the researcher's opinion, the library Web page should be user friendly and easy to use and to understand. Students should not feel lost or frustrated when they access the library Web page. The Generation Y students participating in this study suggested that the Stellenbosch University Library and Information Service Web page should adapt to a Google-like interface. Table 4.8 and Table 4.9 in Chapter 4 show evidence that the participants in the study would prefer to find information using a search engine such as Google than to use the Stellenbosch University Library and Information Service Web page.



CHAPTER SIX

RECOMMENDATIONS

6.1 Introduction

In the final chapter, the researcher attempts to make some recommendations, which came out of the study. The researcher addressed the following and where possible provided recommendations.

6.1.1 Generation Y and Information seeking behaviour

6.1.2 Generation Y and learning style

6.1.3 Generation Y and technology

6.1.4 The library Web page and Web 2.0

6.1.5 The library as a physical place in a virtual space

6.1.1 Generation Y and Information seeking behaviour

The Internet has changed Generation Y students' perception of how to search for information. A student wants information as quickly as possible without having to put in a lot of effort for finding information. Generation Y students tend to expect Web searching and searching for information on a library Web page to be similar. Generation Y lack the necessary critical thinking skills that could assist them in writing academic assignments. Lorenzo and Dziuban (2006: 9) argue that critical thinking skills play a vital role in a person classed as being information literate. The literature provides

evidence that Generation Y lack basic critical thinking and information literacy skills. Generation Y students are visual learners. The researcher advocates that libraries make use of interactive information literacy programs on a platform such as Second Life to educate Generation Y students in a virtual way on how to search for information on the library Web page and to use search engines maximally.

6.1.2 Generation Y and learning style

Generation Y shows a likeness for experiential learning by means of trial and error (Sweeney, 2005: 172). Therefore, the library should concentrate on learning. Generation Y students must be learned to use the library Web page instead of teaching them how to use the library Web page. The researcher proposes an online learning program, which is fun to learn, experiential and game-like. The researcher suggested Second Life because it is game-like and students would have fun to learn information literacy skills. Generation Y students want to learn at their own pace and they want a variety in learning options. The library must provide online training programs in order for students to interact with these programs.

6.1.3 Generation Y and technology

Generation Y students enter the university with a knowledge of how to use the different technological tools available to them. Generation Y students regard technology as a tool having access to information and communication. Students are comfortable with the use of technology and quite at ease with multi-tasking while using a range of technologies (Combes, 2007: 17; Freifeld, 2007:8). Generation Y students are also visually literate. Generation Y students would in particular seek mediums where visual messages are being expressed or communicated (Gibbons, 2007: 17). In order for the library to fulfil the needs of Generation Y students, the library should make more portable storage and wireless connections available.

6.1.4 The library Web page and Web 2.0

It is important that libraries focus on changing to their users' expectations. Libraries should create a Web presence that is suitable and in touch with their library users' needs.

Library Web pages perceived to be complex (Becker, 2003: 85). The library Web page plays an important role that links the librarian with the library user who is seeking information. Libraries should also take into account that their library Web page is the only interaction off campus students have with the library. The researcher recommends that libraries should adjust their Web page in such a way that library users would find it easy to use the library Web page. By incorporating Web 2.0 technologies the library, provide for users with different learning styles, such as Generation Y, who would benefit from using the library Web page. Web 2.0 technologies offers libraries opportunities to provide a better service to its library patrons by combining user expectations, assessing user information behaviour seeking needs, anticipating user needs and satisfying user needs. By doing so libraries could market, their services on Facebook in the form of infomercials as part of a marketing tool to MSN increase the visibility of the library. Web 2.0 technology accessed on a wide range of devices such as integrated with other services such as E-Commerce applications and Web portals. With Web 2.0 technologies, the user placed in the centre and the library services built around the user.

6.1.5 The library as a physical place in a virtual space

Libraries should market their services both physically and virtually in such a way as to create awareness of what the library has to offer. The researcher recommends that libraries draw attention to their library services, in particular those services, which are relevant in the digital world.

6.1.6 Further research

The researcher recommends that further research be undertaken in the information seeking behaviour of Generation Y students and the development of new strategies to educate students how to search and evaluate information found on the Internet. Effective online searching is believed to be a required information literacy skill. The literature used in the study provides evidence that students rely heavily on finding information from Web search engines.

6.1.8 Conclusion

Libraries must become an environment where Generation Y students are enriched with education and lifelong learning opportunities and where they should embrace the digital services offered by libraries. Libraries should continue to assess the needs of their Generation Y students, those currently enrolled and those yet to come. Librarians should embrace the learning styles of Generation Y students because this would help them to understand and support Generation Y students with their needs and wants (Harrison, 2005: 22). Librarians should also embrace Web 2.0 technologies by becoming more open-minded about the adaptation of Web 2.0 technologies.



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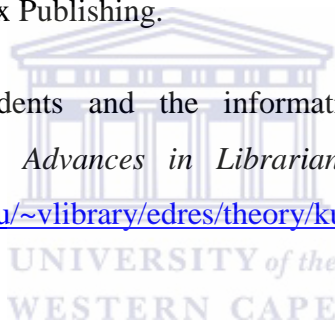
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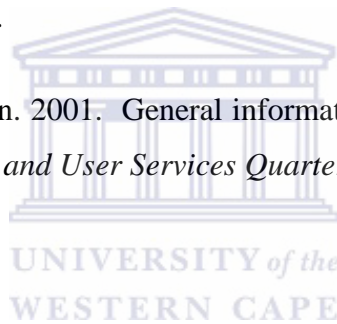
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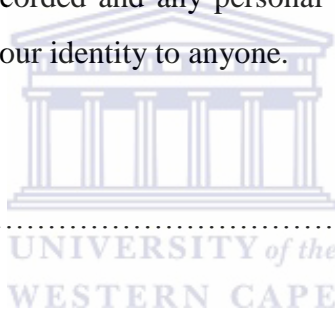
APPENDIX 1

Consent Form for Qualitative Interview

Title of study: Information seeking behaviour of Generation Y students
undertaken by Lindall Adams

I would be grateful if you could confirm, by signing this form that you freely agreed to the recorded interview for this project and that recorded interview or extracts from this interview will be analysed and written up during the course of the research. The findings will be included in a published thesis and may be used in public works such as academic articles or scholarly texts.

The interview be digitally recorded and any personal details will be anonymous and I will not intentionally reveal your identity to anyone.



Signed:

Print Name:

Student number:

Date:

APPENDIX 2: Questionnaire to students

1. I found it difficult to select a topic.	Rating
<input type="radio"/> Almost always	5
<input type="radio"/> Often	4
<input type="radio"/> Sometimes	3
<input type="radio"/> Seldom	2
<input type="radio"/> Almost never	1



WESTERN CAPE

2. I scan for the availability of information on a topic, before I make a selection.

<input type="radio"/> Almost always	5
<input type="radio"/> Often	4
<input type="radio"/> Sometimes	3
<input type="radio"/> Seldom	2
<input type="radio"/> Almost never	1

3. I always consider changing my topic because I could not find the relevant information to use.

<input type="radio"/> Almost always	5
<input type="radio"/> Often	4
<input type="radio"/> Sometimes	3

- Seldom 2
- Almost never 1

4. I always feel uncertain about the topic I have selected and I do not know what is being expected from me.

- Almost always 5
- Often 4
- Sometimes 3
- Seldom 2
- Almost never 1

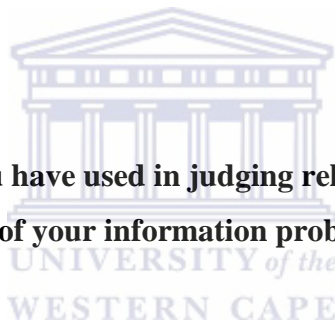
5. State the criteria you have used in judging relevance of documents searched and used in solution of your information problem. (Max 3).

- Abstract
- Title
- Introductory sentences
- Conclusion
- Author
- None of the above.

6. How do you feel when you search for the relevant information but have problems with finding information?

7. When searching for information for an academic assignment, do you ever feel at some stage to give up on your search for information, and why?

8. Do you ever feel uncertain about the outcome of your submitted assignment?



9. You have your chosen topic and busy to search for information on your selected topic. Where would you begin? E.g. Library Web page, Faculty librarian or search engines? Please support your answer.
10. Library Web page or Google? Why would you make this choice?



APPENDIX 3: Interviews

QUESTION 1. What was the first thing that came to mind when you heard the announcement in class that you have to write and submit an academic assignment?

Participant 1: If I do not know anything about the topic, I go and search on Google.

Participant 2: Tensed up immediately. It's a lot of work.

Participant 3: Nothing really, I like writing essays. Easy. I use Google. [Laugh]. Information finding not difficult

Participant 4: First thing came to my mind where would I get this information. Overall feeling I have to do it on time. Coupled with stress with previous assignments assuming this question [um] supposes I have written previous assignments I would stress from right then.

Participant 5: I'm not scared of anything

Participant 6: It was new to me. First time I search for information on assignment I went on to Google.

QUESTION 2. How do you formulate a topic in order to search for information on it?

Participant 1: Mind maps. Take it from central theme. Organise hierarchy.

Participant 2: Use what lecturer gives you. Try to find main ideas. Look for topics which are the easiest to get information on. Sometimes when I do an assignment and I do not get information I switch the topic. Choose a topic which would give more words. Focus on main keywords.

Participant 3: [Response not related to the question]

Participant 4: Most of the time when they give us the topic, they would highlight or print in bold. I would look for material on those things which are highlighted. If is not highlighted like the current essays in economics one look for things we normally talk about in class such as the global economic crisis. I'm third year. I can separate important things. This makes it easy for me to get information for my essay

Participant 5: I use computer. I would firstly try to narrow my search down to whatever the topic is.

Participant 6: I try not to use more than three words when I search for information on Google.

QUESTION 3. Do you have difficulties to find keywords when you formulate a search?

Participant 1: No. Depends on how much I know about the subject. Research. See what keywords to use.

Participant 2: Depends a lot how straightforward the assignment is. Detailed assignments without sub-sections are easier.

Participant 3: I like writing essays. I get good marks. I'm happy. It is easy marks.

Participant 4: One of biggest problems I have is when you type in keywords and do not find the relevant information. For instance, the university Web page you would type in the keyword and it does not give you the relevant material you need. What the university search system does, it gives you information which is related but not relevant to the information you need. When you switch to popular search engines such as Yahoo or Google sometimes they give you significant information and sometimes they would not. What they do is they highlight all the words related to your phrase. Sometimes it's also not relevant. You have to bring it into context.

Participant 5: Sometimes but not really. It depends on Websites or information available.

Participant 6: [answer not related to the question]

QUESTION 4. Which sources do you consult for finding information? Why?

Participant 1: Use Google. Find library Web page effective when looking for books. Hardly use academic articles. Find it difficult. Google provides easy and quick access and no hassles. With keywords, I can easily find different material.

Participant 2: Internet. Google, find it easier and easier to use. Take a look at the first three hits. If I do not get what I am searching for, I would change the search strategy. I also go to Wikipedia. Not sure how reliable it is. Main thing I like about the library is when you search for a book I can search the whole section. I search the topic.

Participant 3: Google is easy. Find good reference material. Access is easy and sources are good. Library only have certain academic articles and books. Google update their sources daily. Library sources outdated.

Participant 4: It depends. If the topic were general, I would get one book and start writing my essay and then look for information as I go along. If the essay were not general, I would look for sources. I divide my research into a first leg and second leg. First, I come to the library and get my resources books and journals which are not available on Internet. I make copies. I get information on definition and then I go search for information. When I start typing my essay, ideas come into my mind. If the module is about economics, I have a textbook I can use to start of my essay. I come to the library to find relevant information. I get all my information I want from the library. I do not fancy coming back to the library.

Participant 5: I use law library. I use journals and statutes.

Participant 6: Google, Yahoo, You Tube and Amazon. I only used once the library Web site.

QUESTION 5: How relevant is the information you retrieve from the sources you use?

Participant 1: Yes, the information is relevant. I was trained well by the Faculty Librarian to search for books and articles.

Participant 2: Yes, I find the information relevant. I would [pause]... I would make sure [pause]...there were a few [pause]...well I would compare the results with the different search engines.

Participant 3: If the information I search for were not relevant I would go back to research phase and look again for new information.

Participant 4: I find the information normally relevant. I take a look, if I do my search right I can see how the Website looks. The Internet is easy. If you get on site where there are more commercials I just close the Website. Wikipedia is search driven. With books, I look in table of contents.

Participant 5: When I feel that the information is not relevant I would return to the library. I felt stressed out. I wanted to change my topic. It stresses one out. Sometimes you want to quit writing the assignment. It stresses me out. Sometimes I said do not do it. That's the case with me. In fact, I came back to the library today.

Participant 6: Everything is relevant. Not like, you can open next page. I would find material relevant.

QUESTION 6: Do you ever feel at some stage uncertain about the information you use?

Participant 1: No my searches are usually quite specific. I do stress when I think cannot find information. The internet is very broad. Stress me out when I have to ask the librarian. It should be much better looking for books than to rely on the computer.

Participant 2: Oh, well I never thought about it. I just believe that the information on the Web site is trustworthy. I could never thought, that the information is not right.

Participant 3: Sometimes yes. [Nervously laugh]. Information you get not linking up.

Participant 4: I differentiate between the information I found into what is more accurate and descriptive. I like to read through everything first. I identify the main ideas. Sometimes there is a lot of information. All say the same thing. Which option to choose to describe what is being said the best? Should I select the formal writing style of the explored information or the informal writing style? I collect the information first. I put everything together. I make a rough draft.

Participant 5: Sometimes when I get information, it looks very promising. But when I start writing the essay, it's probably not as relevant as I thought it would be. Students do a lot of work. Probably, the very intelligent student would look at the amount of sources which is required to complete the essay. You want to use the sources what you have. What I experience when I write the essay is that the information is not relevant and I have to extract the information and look for new information.

Participant 6: [answer not related to question]

QUESTION 7: How do you feel when you cannot find what you are looking for?

Participant 1: Frustrating feeling. Every single person would say it. Experiences false hope. I guess you become anxious. Experiences false hope. When you look for information, your head becomes sore. I look at the computer all the time. I become irritable. I feel like smoking. I quit smoking a few days ago.

Participant 2: I think my goodness my essay is not going to be good. When I sit and find direction and write my essay I think I'm moving away and I had lost my confidence. Not good assignment. Spend less time doing research.

Participant 3: If you start with something and you are halfway through and you see that the information is not helpful I feel like giving up. But this depends on how far I am and the time I have available. If I start ahead of time and see it's not working than I would change my topic. But time is constricting. Try and describe more. Look for information. Depends on time and if I'm pressured for time I would pursue the topic. When it is at the beginning of the assignment I would change the topic.

Participant 3: I go back to research phase and look again for new information.

Participant 4: I would go to Amazon? Yahoo and I got nothing. Some people said I must go to the library. I gave up hope. I felt frustrated.

Participant 5: Frustrating. Sorry to bring up academic articles. Search engines are not very frustrating. Deadlines frustrate me a lot.

Participant 6: [answer not relevant to the question]PE

QUESTION 8: When would you approach the librarian for help?

Participant 1: I would approach the librarian if I have specific question.

Participant 2: My last resort for help. But I went to the librarian to ask for help.

Participant 3: Never ask librarian how libraries Web pages work. But I understand how it works.

Participant 4: I go to the librarian when I really get stuck. Do not know which way or when I get something I do not know where to look for. During last semester I did not know which databases to use. I did not have a clue how it work. Library Web page is not very descriptive. Especially with articles or which databases you need to go on where to

get access. So, when I get stuck and nobody else to help me I would go to the librarian. My first resort is to ask my friends.

Participant 5: Firstly, I go to the librarian. I go to the Faculty librarian. Most of the times I would sit down and talk to the librarian and would ask the librarian for guidance on books and databases they could recommend to me.

Participant 6: When I'm in the library. I do not use the library a lot. Only use the library two times when looking for books.

QUESTION 9: Do you make use of the virtual library services?

Participant 1: Like chat, no.

Participant 2: No, I do not.

Participant 3: [um] not sure

Participant 4: Not really

Participant 5: If I would use it, I do not know. When I write my assignment, I'm sitting in front of my computer. I have everything in front of me.

Participant 6: (answer not related to question)

QUESTION 10: Do you feel confident to use the library Web page?

Participant 1: Yes, I use the databases.

Participant 2: I just used it once. I am not sure how it works. When I logged on to it, it was easy to use.

Participant 3: Depends. No problem navigating. Finding books are quite easy. I cannot find academic articles. How to look for academic articles on Web page is not friendly.

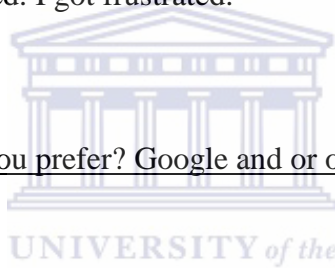


Participant 4: To look for books it's easy. Library Web page is well designed. I appreciate it a lot. I like IT. I'm more that kind of person. It's easy and user friendly. Only thing I like to say is that the databases are trickier. Luckily, they put up the guideline boards by desk no. 9.

Participant 5: I feel confident. It's academic. The confidence I feel because it's academic. I have confidence in the system but not on the information.

Participant 6: I feel lost. The library I do not know. Something different it is not easy to use. I do not gain anything out of it in my opinion. It's complex. I cannot open articles in html. I found a book before a year ago. I was looking for E journal the other day. I typed in (you know our generation computer literate); well the lecturer gave me a link on how to search for the journal. I tried. I got frustrated.

QUESTION 11: Which do you prefer? Google and or other Web search engines or the library Web page?



Participant 1: It depends. I just mean for information I would start with Google.

Participant 2: Google. I heard about Google when I started my information seeking the first time. It is the first thing which is coming up. Google is easy. You just type in the word and you would get a result list. I do not have a specific reason why I use Google but Google is very easy. I got the most exposure on Google

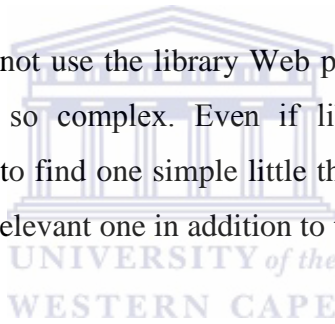
Participant 3: Answer is obvious. Yes Google. MSN and Yahoo is not so user friendly. Reason our generation tends to use Google because it's user friendly. See there's a link you click on it. I get confused with all the advertising and links on Yahoo.

Participant 4: I prefer Google. I was brought up with Google. I use it to find information, even in primary school when doing projects. I am familiar with it. I know I would find my information on Google. I am familiar with Google. Library Web page is kind of new to me. Like the way it's constructed. Google is easier to use. Google is more

convenient than any other library system I have worked with. With Google find information quickly. You know what you going to get. You can locate information within 10 minutes time.

Participant 5: I would prefer Google or rather Google Scholar or the Google broad search. You find information as you type in your search. The information is not always reliable. With the library Web page sometimes you search and you do not know how to search on the library Web page. I'm not saying you have to be spoon-fed. I had a lecture on how to search for information in the library. You were bombarded with information. When I start looking for information, I look for books and then I look for journals. The library Web page can be very frustrating or difficult to use if you are not patient or when you do not know computers very well.

Participant 6: Google. I do not use the library Web page to be honest. You can't find what you looking for. It's so complex. Even if librarians show you it's such a complicated process on how to find one simple little thing and the time it takes to look for one thing and to find the relevant one in addition to that. I can write a whole essay on this.



QUESTION 12: What is the role of the library in fulfilling the information needs of Generation Y students?

Participant 1: Yes, I just think that now I'm aware of everything. You mentioned other databases. I have never been on there before. Now I'm curious.

Participant 2: Yes, but still there are too many lines for students who wait for available computers. You would need more computers at some stage. The quiet areas are quite nice.

Participant 3: Students today see library place for study. Not enough computers. The Website interface is not always that helpful. I would have to say no.

Participant 4: (did not answer the question)

Participant 5: No, the information is limited. Do not have enough information on subject matters or maybe the library do. But I must say that there are no guidelines on where and how to access this information. I know they want us to find information to find ourselves.

Participant 6: No, most students can't use the library Web page. It's a complicated process to find information. I can't find anything in the library. Except in the Short Loan section. I can't you anything on the library Web page.

QUESTION 13: Do you think the library can do something better? How would you redesign the library Web page? Do you have any suggestions on information literacy training?

Participant 1: On the library Web page, you find a list of things. I want something available where you can search anything. It would help. I do not want to open another tab. The library Web page font size is too small. It can be bigger with larger spacing.

Participant 2: If the library wants the students to use their library Web site then they should make their Web page easier.

Participant 3: Have a better interface catalogue. People do not know how to locate books. The shelf number is difficult to understand. Arrows could be used to point out where the books can be found on the shelves.

Participant 4: With the library training, my mind drifts off. I did not pay attention. Why do not they have an interactive program on the library Web page on how to learn the book and database searches? I want visual training. There might be students who take things like information literacy seriously. The majority of Generation Y does not concentrate in information literacy training classes. I see it as too time consuming.

Participant 5: I attended an information literacy class. Halfway I lost interest. I do not mind if the librarian highlights some aspects on information literacy as theoretical training as well. I want only to shown how to look for books, journals or newspapers and where to get the information. They should only focus on that. Do not ask me to click on it. I can see everything. Focus on trying to teach me how to find books and articles. Many arrows were used with the initial PowerPoint presentation. I cannot process all of that. It's really confusing and it bores most students. Limit the arrows. Have a next page slide instead of pointing out all the information with the use of arrows. Show it to me so I can visualize it. We are not children. It should stick in our minds. **Participant 6:** The library Web page should change to something usable such as Google.



APPENDIX 4: Follow up questionnaire to students

1. Which of the following statements describe the beginning of writing and gathering information for an academic assignment best?

- Puzzled by how and where to get information
- Uncertain by how and where to get information
- I have limited knowledge about the topic.

2. How do you feel when you have identified and selected your topic?

- Positive about the topic
- Interested in the selected topic
- Negative about the selected topic
- Unsure about the selected topic
- Anxious because I find it difficult to select a topic.

3. What are your general feelings about exploring and collecting information on your selected topic? (Max 5)

- Confident
- Uncertain
- Disappointed
- Irritated
- Less confident

- Doubt the appropriateness of the selected topic
- Have problems to find adequate information

4. When do you know that the information you have found on your selected topic finally makes sense.

- I understand the information
- I feel certain about the information
- I am actively engaged and I find the information useful



5. How do you feel about collecting data for your selected topic?

- Excited, focused, certain
- Unsure, negative, not focused

6. How do you feel when you have completed your assignment and presented your assignment for evaluation?

- Relieved no matter the outcome
- Positive about the outcome
- Certain of scoring a good mark
- Not sure about the outcome
- Anxious about the grade I would score