

The Use of Browser based Resources for Literature Searches in the Postgraduate Cohort of the Faculty of Humanities, Development and Social Sciences (HDSS) at the Howard College Campus of the University of KwaZulu-Natal

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Declaration

This research has been carried out as partial fulfilment of the requirement for the award of a degree of Master of Arts (Digital Media) in the Faculty of Human Sciences at the University of KwaZulu-Natal. I declare that this thesis is my own work that I have achieved through consulting various sources acknowledged here.

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Dedications

This serves to convey my gratitude to all those without whom this thesis would not have been written. They include:

- My wife for believing that I could
- My late mother who instilled a love of knowledge in me
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- And last but far from least, my son, who is my motivation.

Abstract

The research reflected here examined in depth how one cohort of learners viewed and engaged in literature searches using web browser based resources. Action research was employed using a mixed methods approach. The research started with a survey followed by interviews and a screencast examining practice based on a series of search related exercises. These were analysed and used as data to establish what deficits in using the web to search for literature existed in the target group. Based on the analysis of these instruments, the problem was redefined and a workshop intended to help remediate deficiencies uncovered was run.

Based on this a recommendation is made that a credit bearing course teaching digital research literacy be made available which would include information literacy as a component.

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List of Acronyms

ACRL	Association of College and Research Libraries
ALA	American Library Association
ANZIIL	Australian and New Zealand Institute of Information Literacy
CMC	Computer Mediated Communication
HDSS	Humanities, Development and Social Studies
ICT	Information and Communication Technology
IL	Information Literacy
ILI	Information Literacy Instruction
SCONUL	Society for College, National and University Libraries
UKZN	University of KwaZulu-Natal

Chapter One: Introduction

1.1 Introduction

During my years at this university both as a staff member and as a student, I have frequently had discussions with staff and learners regarding web searching and information literacy. It was my belief, based on these conversations as well as observations prior to starting the research that many people fail to grasp the value of information literacy. The consequence of this is that they frequently fail to find the best literature possible when searching using browser based resources. These resources can vary from specialised databases such as EBSCOHost and Emerald Insight, to the University library database, to broad search engines such as Google. Indeed the latter has become so much a part of searching the Internet that the word has become an accepted word (Oxford English Dictionary, 2011a). While “many people” includes people outside the university community, the problem applies no less to postgraduate students than to anyone else and as researchers their need is arguably more pressing.

Using these perceptions coupled with a desire to help the situation as I saw it, the research reported in this document interrogated the feelings and approaches of postgraduate students in the School of Humanities, Development and Social Studies (HDSS) at the Howard College campus of the University of KwaZulu-Natal (UKZN) towards the use of web-based tools for literature searches. It examined the current knowledge, cognitive approaches to the act of searching and evaluating as well as recording affective responses.

Based on the research a workshop was developed as an intervention to remediate problems discovered. The workshop was conducted. The thesis goes on to discuss this intervention and the response to it.

The research differed in one significant respect from much other enquiries of this type in that most of the studies done stem from information science professionals whereas my background is in information and communication technology and I have latterly done modules in higher education as electives for the master’s degree of which this thesis forms part. For this reason, the lens through which the research matter is viewed is an unusual one, because if I am not an information science professional then I must consider myself to be a peer of the group being studied and not a practitioner on the outside of the cohort. The insider perspective differs then from that of the usual researcher in this field.

An additional way in which this study differed from much cognate research is the use of an eclectic approach using both quantitative and qualitative methods as detailed by Reeves and Hedberg (2003, pp. 34-36). This contrasts with the common quantitative methodology frequently seen in this field although there are, of course, exceptions where qualitative research has been done.

A crucial element of information literacy is the ability to view what is found by the search critically and to select well from what is returned. If one considers in an area external to academia, many false stories, such as the Proctor and Gamble logo claimed to contain satanic symbols (Snopes.com, 2007) and the Two-Striped Telamonia spider that supposedly inhabits toilets (Snopes.com, 2006), which continue to be perpetuated through e-mail, it seems many people are either unwilling or unable to interrogate information critically. This seems to be perpetuated in academic circles, the best known example perhaps, being the Sokal Affair where a physicist, Alan Sokal wrote an article called “Transgressing the Boundaries: Toward a Transformative Hermeneutics of Quantum Gravity” that was published and which he later revealed to have been a hoax stating

So, to test the prevailing intellectual standards, I decided to try a modest (though admittedly uncontrolled) experiment: Would a leading North American journal of cultural studies--whose editorial collective includes such luminaries as Fredric Jameson and Andrew Ross--publish an article liberally salted with nonsense if (a) it sounded good and (b) it flattered the editors' ideological preconceptions?

The answer, unfortunately, is yes. (Sokal, 1996)

Sokal's hoax demonstrates that there are instances where failure to evaluate quality extends well beyond the postgraduate student. If editors of a “leading” journal can fail though, how much more so the neophyte researcher too make mistakes

1.2 Objectives

The questions which were investigated were:

- How well people searched
- How they felt when searching
- How they evaluated what they found.

The first objective of this research was to test the validity of my impression with regard to the information literacy perceptions and practices amongst the postgraduate students in HDSS at the Howard College campus of UKZN. This was done using a survey and then by conducting exercises with selected participants using screencasts and interviews. Following analysis of

those instruments, the problem was redefined and an intervention was designed to remediate the problems uncovered in the practices and understanding of this cohort. As a final step the intervention was conducted and feedback invited at the end of it.

Chapter Two: Literature Review

2.1 Introduction

This review must of necessity touch on a number of elements. These are information literacy, its nature and its value, the teaching of information literacy and the pedagogical underpinnings selected by those teaching this to inform their practice.

2.2 Information Literacy Overview

Information literacy well predates the advent of the computer. According to Virkus (2003, para. 13), “[t]he information-literacy movement ... has evolved from precursors such as library instruction, bibliographic instruction and user/reader education”. As a term ‘Information Literacy’ was first used in 1974 by Paul Zurkowski (Mokhtar & Majid, 2006). Bruce (2001) dates information literacy as becoming prominent in 1989 the year the ALA Presidential Committee on Information Literacy published their report on the topic. Information literacy has increasingly gained currency as a concept since the advent of the World Wide Web and journal databases using a web browser as the interface between the searcher and the database being searched.

While there is some general agreement over what information literacy is, practitioners and theorists are not in universal accord over a definition of information literacy. Moore (2002) states though that these definitions are complementary. If one considers definitions given in the most widely recognised information literacy standards for higher education in Anglophone countries, Moore’s opinion seems to be correct.

The first of these standards was the *Information Literacy Competency Standards for Higher Education* of the Association of College and Research Libraries (ACRL) which is a subgroup of the American Library Association (ALA). This document cites the Presidential Committee on Information Literacy’s final report as providing their preferred definition of information literacy as “set of abilities requiring individuals to ‘recognize when information is needed and have the ability to locate, evaluate, and use effectively the needed information’” (American Library Association, 2000, p. 2). Central to this document is the description of five standards each of which sets the cognitive bar progressively higher and provides a list of performance indicators and outcomes for each of these indicators.

In the United Kingdom the position paper of the Society for College, National and University Libraries (SCONUL) is titled *Information skills in higher education*. The paper draws distinctions between information literacy and information skills stating “Both information skills and information technology skills are seen as essential parts of a wider concept of information literacy” (SCONUL Advisory Committee on Information Literacy, 1999, p. 1). They follow this by saying “A broadly based definition of information skills in higher education reflects twin dimensions of the ‘competent student’ and the ‘information literate’ person” (SCONUL Advisory Committee on Information Literacy, 1999, p. 1).

The document while not giving a stated definition of information literacy does observe that information literacy is more than simply searching for literature which it refers to as “information skills”. It states that appropriate to the term information literacy are

attributes of awareness and understanding of the way in which information is produced in the modern world, critical appraisal of the content and validity of the information (linking with elements of critical thinking more generally), some practical ideas of how information in the real world is acquired, managed, disseminated and exploited, particularly with knowledge of how appropriate professional groups use information in the workplace, in business, and in the world of culture and the arts. (SCONUL Advisory Committee on Information Literacy, 1999, p. 5)

Considering the requirement of information technology skills mention in the SCONUL document, it is appropriate to mention that (Phelps, Fisher, & Ellis, 2006, 2. General organisational and computer skills, para. 1) found that

A surprising number of respondents mentioned their overwhelming need for general computer or technical skills, and greater awareness of how computers can assist with research (including an understanding of what software is available). For others, the identified issue was how to use computers more efficiently or effectively than they already do, or to use the more 'advanced features of the computer'.

The Australian and New Zealand Institute for Information Literacy (ANZIL) acknowledge the provenance of their standards as being the standards of the ACRL (2004, p. 3). ANZIL provides as its definition of information literacy as “an intellectual framework for recognising the need for, understanding, finding, evaluating, and using information”. (Australian and New Zealand Institute for Information Literacy, 2004, p.4) which in accordance with its acknowledged origins closely resembles a statement appearing in the ACRL document where it states “Information literacy, on the other hand, is an intellectual framework for understanding, finding, evaluating, and using information” (American Library Association, 2000, p. 3).

Table 1 provides a comparison of the main Anglophone information literacy standards. The shaded areas indicate the elements of information literacy that this research covers.

ACRL		SCONUL	ANZIIL
Standards Descriptors			
1.	“The information literate student determines the nature and extent of the information needed”.	“The ability to recognise a need for information”.	“The information literate person recognises the need for information and determines the nature and extent of the information needed”.
2.	“The information literate student accesses needed information effectively and efficiently”.	“The ability to distinguish ways in which the information ‘gap’ may be addressed”.	“The information literate person finds needed information effectively and efficiently”.
3.	“The information literate student evaluates information and its sources critically and incorporates selected information into his or her knowledge base and value system”.	“The ability to construct strategies for locating information”.	“The information literate person critically evaluates information and the information seeking process”. (Australian and New Zealand Institute for Information Literacy, 2004 p. 16)
4.	“The information literate student, individually or as a member of a group, uses information effectively to accomplish a specific purpose”.	4. “The ability to locate and access information”.	4. “The information literate person manages information collected or generated”. (Australian and New Zealand Institute for Information Literacy, 2004 p. 18)
5.	“The information literate student understands many of the economic, legal, and social issues surrounding the use of information and accesses and uses information ethically and legally”.	“The ability to compare and evaluate information obtained from different sources”.	“The information literate person applies prior and new information to construct new concepts or create new understandings”.
6.		“The ability to organise, apply and communicate information to others in ways appropriate to the situation”	“The information literate person uses information with understanding and acknowledges cultural, ethical, economic, legal, and social issues surrounding the use of information”.
7.		“The ability to synthesise and build upon existing information, contributing to the creation of new knowledge”.	
Additional Notes			
First major standards document			Cites ACRL as informing the framework.
“provides a framework for assessing the information literate individual”		“The model attempts to address the key question of different levels of higher education work.”	“The <i>Framework</i> supports the embedding of information literacy in the design and teaching of educational programs across the curriculum”.
Stresses value of information literacy to lifelong learning.		Information literacy mentioned as aiding lifelong learning.	Information literacy central to the “lifelong learning process”.
Breaks down each standard in to constituent outcomes.		Does not break down elements but does consider the role on Information Technology Literacy.	Breaks down each standard into elements.
Sources (All page references in the appropriate column refer to the documents below)			
(American Library Association, 2000)		(SCONUL Advisory Committee on Information Literacy, 1999)	(Australian and New Zealand Institute for Information Literacy, 2004)

Table 1: Comparison of Anglophone information literacy standards

In practice, however, detailing the Principle of Least Effort Mann (1993, p. 91) states that, “most researchers (even “serious” scholars) will tend to choose easily available information sources, even when they are objectively of low quality, and, further, will tend to be satisfied with whatever can be found easily in preference to pursuing higher-quality sources whose use would require a greater expenditure of effort”. Mann does not mention this in order to be derisive towards the researchers, but rather goes on to unpack the relevance of recognising this. He argues that whilst librarians, database interface designers and information literacy instructors recognise this principle as being valid, they do not bring it into consideration when teaching or developing interfaces and simply prefer to lay the blame for any failures on user laziness. It is noteworthy that UKZN Librarian (2009) in commenting on the state of information literacy at this institution reflects the validity of Mann’s Principle of Least Effort as discussed earlier stating “I suspect a lot of learners go the easy route”.

Extending this is the need to realise, as Tabatabai & Shore (2005) point out that “[a]s with computers, the Web’s hypertext capabilities alone do not turn the Web into a cognitive tool. What is missing is identifying and incorporating strategies that will support the cognitive processing of the information”.

Various metaphors used to describe approaches to the information search are given by Edwards (2005) as looking for a needle in a haystack, finding a way through a maze, using the tools as a filter and panning for gold. These represent a skills hierarchy which is described by Edwards and Bruce (2004, pp. 147-148) in the following way:

Category 1: Information searching is seen as looking for a needle in a haystack.

In this category students see information searching as similar to looking for a needle in a haystack. A significant amount of attention is directed towards the search topic. They appear to see it as imperative to understand the topic or they will “never find it out there”. Although they are aware of the information environment they have no appreciation of the importance of the structure of that environment, the wide variety of information resource tools available, nor that the structure of these search tools will enable them to find the information they require. More importantly in this category there is little evidence of approaching the search process in a reasoned or a reflective manner. There is usually an assumption that the information required is not available at this source, or the search tool in use is of poor quality and does not index the required information.

Category 2: Information searching is seen as finding a way through a maze.

In this category students see information searching as the process, or the planning, of a search. While they still focus on the topic, there is a strong emphasis appearing on the choice of terms and synonyms, databases, and retrieving results into a useable format for later work. The process or the planning of the search has become more important, with students beginning to use advanced search features, and talk about some aspects of the

quality of the information found. In this category they are more likely to persist, consider alternatives, and persevere to find results. They have a growing awareness of the rich variety of search tools available, however, again there is still a tendency to blame the tool rather than question their own abilities.

Category 3: Information searching is seen as using the tools as a filter.

In this category students see information searching as using the searching tools as a filter to find information. They tend to use the tools to help them understand the topic as well as to find the required information. They are much more aware of the structure of each of these tools and show an ability to adapt their searching based on the tool they are currently using. In this category students take the necessary steps to correct mistakes as required and planning is evident. This planning often includes an analysis of the terms and a more pronounced attempt to identify synonyms before proceeding. There are also attempts throughout the search process to identify and change strategies based on the results of the first attempts.

Category 4: Information searching is seen as panning for gold.

This category could also be described as using the search tools as a filter, but this time the intention is to limit results to high quality information. In this category students see information searching as a process of using the tools during the search to limit the final set of results to include only the highest quality resources. The intention is to use the appropriate tools to find only primary information resources. As the awareness of primary and secondary information is heightened, the tools and their structure are used to refine both the topic and the search, to help filter out poor quality items. Strong planning and reflection are evident and the searching process includes changing strategies based on the results of first attempts.

Information literacy spans continents and countries and Sirje Virkus (2003) mentions the United States, Australia and goes on to state “[t]here are also references to information literacy developments in Canada, China, Japan, Mexico, Namibia, New Zealand, Singapore and South Africa”.

With regards to South Africa, Choonoo (2000, p. 2) observes while electronic access has become more ubiquitous, this “has not necessarily improved intellectual access”. Choonoo observes tragically that

The provision of online instruction is not a widely accepted practice although it is common to many academic libraries in South Africa. There is a school of thought that argues that help screens and user friendly systems should obviate the need for such instruction. However, experience indicates otherwise. (p. 2)

Very importantly Choonoo confirms as one might suspect that those who are not adept at English are handicapped in the search process because “[p]roficiency in the use of the English language has been emphasized as a critical element in efficient online search performance since most databases and protocols, particularly those used in South Africa, are based in English” (p. 3).

Some research has been done at this university and its antecedents which deals either directly or tangentially with information literacy. Soyizwapi (2006) evaluates the frequency of use of databases by students in the Faculty of Science and Agriculture in Pietermaritzburg and work has been done by Jagarnath (2004) into end user instruction in information literacy dealing with learners from the Faculty of Commerce. Prior to the merger of the University of Natal and the University of Durban-Westville work was done by Aitchison (1998) who researched “[a]ccess to books and journal articles” by a particular cohort of post-graduate students and Kebede (2002) who looked at modelling user’s information needs in an “electronic information environment”.

Informing this research is the belief that as stated by Williams, Goodson, and Howard (2005, p. 518) “[a]n information literate student has the power to ask the right questions, find appropriate information, perform focused analysis, and derive reasonable answers both at the university level and in the wider world”.

2.3 Information Literacy Instruction

The ACRL states that “Information literacy is a key component of, and contributor to, lifelong learning” which it contends is “central to the mission of higher education institutions” (American Library Association, 2000, p. 4).

Abid (2004, p. 1) elaborates on the value of information literacy to lifelong learning, writing

Information literacy forms the basis for lifelong learning. It is common to all disciplines, to all learning environments and to all levels of education, while recognizing the disparities in learning styles and in the nature and development of literacy in different countries. It enables learners to master content and extend their investigations, become more self-directed, and assume greater control over their own learning, information literacy should be introduced wherever possible within national curricula as well as in tertiary, non-formal and lifelong education.

On the obverse side of the coin though UKZN Librarian (2009) states validly “we can teach successfully only if the student consents to be taught and plays an active role in learning.

Mansourian (2007, p. 98) referring to Ford and Mansourian (2006) provides a list of four factors required for a web search to be successful and notes that of these four only the second “the search tool employed must be able to locate them” is technological. They further state “All the others relate either to the user, or to the user’s interaction with technology”.

There have been a number of ways of approaching information literacy instruction. These approaches are well summed up in six different approaches (Bruce, Edwards, & Lupton, 2006). These approaches are given as a series of frames “through which many elements of IL education might be experienced” (Bruce et al., 2006, p. 3) The frames are the content frame, the competency frame, the learning to learn frame, the personal relevance frame, the social impact frame and the relational frame. Each of these frames is informed by different views and approaches to information literacy, information, curriculum focus, teaching and learning, content and assessment. Table 2 (overleaf) provides details of the six frames.

“Deep learning” is deemed necessary as it allows the development of skills which are transferable to other settings (Webber & Johnston, 2000). Eisenberg and Berkowitz quoted in Moore (2002) suggest that learning outcomes can be described in terms of Bloom’s Taxonomy of Educational Objectives. This taxonomy specifies a hierarchy of cognitive levels using verbs as descriptors for the various strata. Webber and Johnston also touch on this idea when they consider the similarity between the verbs used in the Seven Pillars model and “words used by educators to describe generically high-level learning outcomes” (Webber & Johnston, 2000, p. 392).

There is much that is flawed in information literacy instruction in higher education. Johnston & Webber (2003, p. 342) comment that “As noted by Hepworth (2000) and librarians themselves, it is likely that they need more education about learning and teaching, so it is perhaps not surprising that much of what they are doing could be criticised from an educational perspective”.

Locally (UKZN Librarian, 2009) reflects

life long learning"? we can't teach techniques which will last a lifetime. We can hope to implant a thirst for learning which will, but at the level of information literacy, which is practice-based, can this be done? It's not a question of "doing" the learner like cooking a meal, and that once it's "done" they are set for life. Also, do you impart a thirst for learning by giving sets of answers to specific problems?

Content Frame	Competency Frame	Learning to Learn Frame	Personal Relevance Frame	Social Impact Frame	Relational Frame	← Frame Orientation Characteristics ↓
Information exists apart from the user; can be transmitted	Information contributes to the performance of the relevant capability	Information is subjective – internalised and constructed by learners	Valuable information is useful to the learners	Information is viewed within social contexts	Information may be experienced as objective, subjective or transformational	View of Information
What should learners know about the subject and IL?	What should learners be able to do?	What does it mean to think like an (IL) professional in the relevant field?	What good is IL to me?	How does IL impact society?	What are the critical ways of seeing IL?	Curriculum Focus
Teacher is expert – transmits knowledge	Teachers analyse tasks into knowledge and skills	Teachers facilitate collaborative learning	Teaching focuses on helping learners find motivation	Teacher's role is to challenge the status quo	Teachers bring about particular ways of seeing specific phenomena	View of Teaching
Learning is a change in how much is known	Learners achieve competence by following predetermined pathways	Learners develop conceptual structure and ways of thinking and reasoning	Learning is about finding personal relevance and meaning	Learning is about adopting perspectives that will encourage social change	Learning is coming to see the world differently	View of Learning
What needs to be known has primacy. All relevant content must be covered	Content derived from observation of skilful practitioners	Content chosen for mastering important concepts and fostering reflective practice	Problems, cases, scenarios selected by learners to reveal relevance and meaning	Reveals how IL can inform widespread or important social issues or problems	Examples selected to help students discover new ways of seeing. Critical phenomena for learning must be identified	View of Content
Assessment is objective. Measures how much has been learned; ranks student via exams	Assessment determines what level of skill has been achieved	Complex, contextual problems are proposed. Self or peer assessment is encouraged	Typically portfolio based – learners self assess	Designed to encourage experience of the impact of IL	Designed to reveal ways of experiencing	View of Assessment
IL is knowledge about the world of information	IL is a set of competencies or skills	IL is a way of learning	IL is learned in context and different for different people/groups	IL issues are important to society	IL is a complex of different ways of interacting with information	View of IL

Table 2: The Six Frames of Information Literacy Instruction (Bruce et al., 2006)

2.4 Constructivism

Turning to consider a pedagogical approach to creating a workshop is a belief in keeping with the learning to learn frame detailed by (Bruce et al., 2006) that information literacy is about learning to learn. In addition one needs to consider the value of information literacy brings to lifelong learning and the related need for deep learning. It seems that of the three broad approaches detailed earlier that a constructivist approach is best suited to cover all of these approaches

Mayer (1996) lists three broad approaches to teaching and learning. These are instructivist, cognitivist and constructivist. The instructivist techniques stem from behaviourist ideas and for that reason the terms behaviourist and instructivist may be seen as synonyms in pedagogy. Ally (2004) sums up the differences between the ideas succinctly when he writes “behaviorist strategies can be used to teach the facts (what), cognitivist strategies the principles and processes (how), and constructivist strategies the real-life and personal applications and contextual learning”.

According to (Moore, 2002, p. 2) “Information literacy exists, in pedagogical terms, at the confluence of resource-based learning practice, constructivist and metacognitive theories, and the practice of developing thinking skills through modelling and scaffolding”. There have been multiple approaches to teaching information literacy which are well delineated by Bruce, Edwards and Lupton (2006). Constructivism is dealt with by them in the learning to learn frame of their six frames (See Table 2) and they explicitly declare it as such saying “Users of the learning-to-learn frame ... usually adopt a constructivist orientation”. (Bruce et al., 2006, p. 4) They further state that advocates of this approach “are also interested in what will help learners construct knowledge appropriately, and develop learning processes that foster the development of professional thinking patterns”. (Bruce et al., 2006, p. 4)

Doolittle & Camp (1999, Constructivism, para 1) describe constructivism as “a theory of learning that has roots in both philosophy and psychology”. The constructivist idea is said to originate with Giambattista Vico’s idea that truth is made which correlates with the idea that “learners actively construct their own knowledge and meaning from their experiences”. Doolittle & Camp (1999, Constructivism, para 1) who further sum it up saying “constructivism acknowledges the learner’s active role in the personal creation of knowledge, the importance of experience (both individual and social) in this knowledge creation process, and the realization that the knowledge created will vary in its degree of validity as an accurate representation of reality”. Mayer (1999, p. 612) states it well when he says “Constructivist learning occurs when learners seek to make sense of the presented material by constructing a coherent mental representation”. Mayer (1999, p. 615) and recognises that “students need to learn to coordinate the basic cognitive processes of selecting, organizing and integrating”. (Mayer, 1996, p. 368)

There are however various forms of constructivism. Bonk & Cunningham (2005, p. 32) state that “there is no canonical form of constructivist theory” and refer to Cobb writing “Cobb (1994) identified two variations—cognitive constructivist and social constructivist—and there are undoubtedly more”. Cobb was indeed right in the assumption of additional variations, the widest known of which is Ernst von Glaserfeld’s radical constructivism (J. Anderson, Reder, & Simon, Undated; Doolittle & Camp, 1999; Phillips, 1995).

Opposing claims of the virtues of constructivism, J. Anderson, Reder, and Simon (1999, Abstract, para. 1) state that “constructivism advocates very inefficient learning and assessment procedures”. They unpack what they see as the four claims of constructivism. These are

“Claim 1: Knowledge cannot be instructed (transmitted) by a teacher, it can only be constructed by the learner”.

Their counter to this is that “it may be costly in time, and when the search is lengthy or unsuccessful, motivation commonly flag,” (J. Anderson et al., 1999, Claim 1, para. 19) and that “Real competence only comes with extensive practice. The instructional task is not to “kill” motivation by demanding drill, but to find tasks that provide practice while at the same time sustaining interest. There are a number of ways to do this, for instance, by “learning-from-examples.” (J. Anderson et al., 1999, Claim 1, para 21)

“Claim 2: Knowledge cannot be represented symbolically” stating “Cognitive competence (in this case mathematical competence) depends on the availability of symbolic structures (e.g., mental patterns or mental images) that are created in response to experience” (J. Anderson et al., 1999, Claim 2, para. 7).

“Claim 3: Knowledge can only be communicated in complex learning situations” – Here the authors counter this by arguing that a struggling learner may have problems with the component parts of a complex task and become overwhelmed by the exercise and that where the component parts are already competently handled, complex tasks create unnecessary repetition of those elements.

“Claim 4: It is not possible to apply standard evaluations to assess learning” which the authors say “could be the most radical and far-reaching of the constructivist claims” (J. Anderson et al., 1999, Claim 4, para 1). They explain their opposition to the open-ended assessment espoused by constructivists, arguing that the “fundamental problem is a failure to specify precisely the

competence being tested for and a reliance on subjective judgment instead” (J. Anderson et al., 1999, Claim 4, para. 4).

Despite their critique J. Anderson et al. (1999) conclude that “[w]hile we have criticized some of the assumptions underlying current proposals for "child-centered" procedures as both implausible and lacking empirical evidence, we fully agree that the social structure of the environment in which education takes place is of utmost importance from a cognitive, and especially from a motivational, standpoint” (J. Anderson et al., Undated, Recommendations for Research, para. 5).

At the turn of the previous century, and indeed for many centuries before (Rusk, 1979), the behaviourist approach to teaching and learning dominated educational practice. The idea is based on stimulus and response which was further developed into the operant conditioning idea by Benjamin Skinner and which is well described by (Mokhtar & Majid, 2006) who state that operant conditioning “refers to the reinforcement of desirable behaviour and the deliberate overlooking of undesirable behaviour”. The behaviourist approaches to learning are “a convenient approach since both the stimulus and response are manifest and therefore measurable, and offer an empirical legitimacy to the 'soft' science of education” (McMahon, 1997, para. 7).

For myself, I tend towards the idea of weak or mediated constructivism which considers that both objective and subjective realities exist. (Jones, Merritt, & Palmer, 1999)

2.5 Theoretical Framework

Bruce (2001) reflecting on theoretical frameworks for informing information literacy studies, states that due to the number of completed studies being small “the agenda is ill defined and suitable theoretical frameworks are only just beginning to be explored”.

T. Anderson (2004) mentions Wilson’s (1997) three functions of a good educational theory which seems to me to be applicable beyond only the domain of education. A good theory according to Wilson helps us:

- Envision new worlds
- Make things
- Keeps us honest.

Important too in the light of my selected paradigm is the comment by T. Anderson (2004) that “Critics of theory (Wilson, 1999) have argued that too strict an adherence to any particular

theoretical viewpoint often filters our perceptions and blinds us to important lessons of reality” (p. 33).

Any theoretical framework has two primary underpinnings – the ontological and the epistemological – how the researcher sees being and knowledge (Henning, 2004). Views held in epistemology run the gamut from the naturalist who holds that truth is only that which is measurable to the radical constructivist who considers that only what we construct is true.

In considering a framework, the model below was developed.

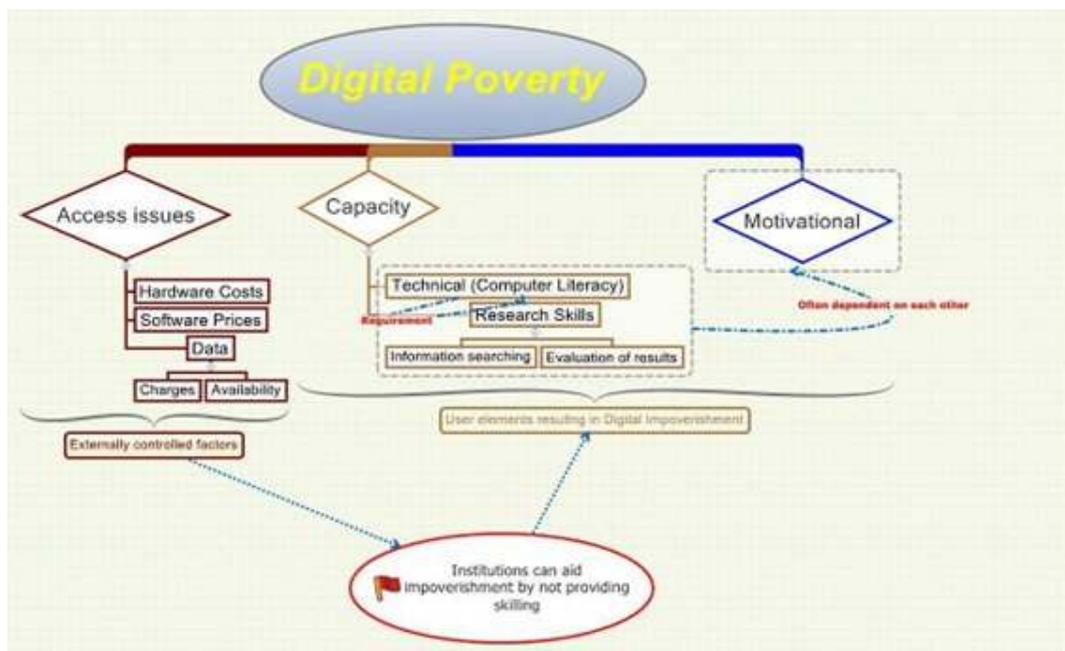


Figure 1: A model of digital poverty as it affects information literacy

This in part mirrors van Dijk’s “*Causal and Sequential model of Digital Technology Access by individuals in Contemporary Societies*” shown in Lupiáñez-Villanueva (2011, No page) and shown below.

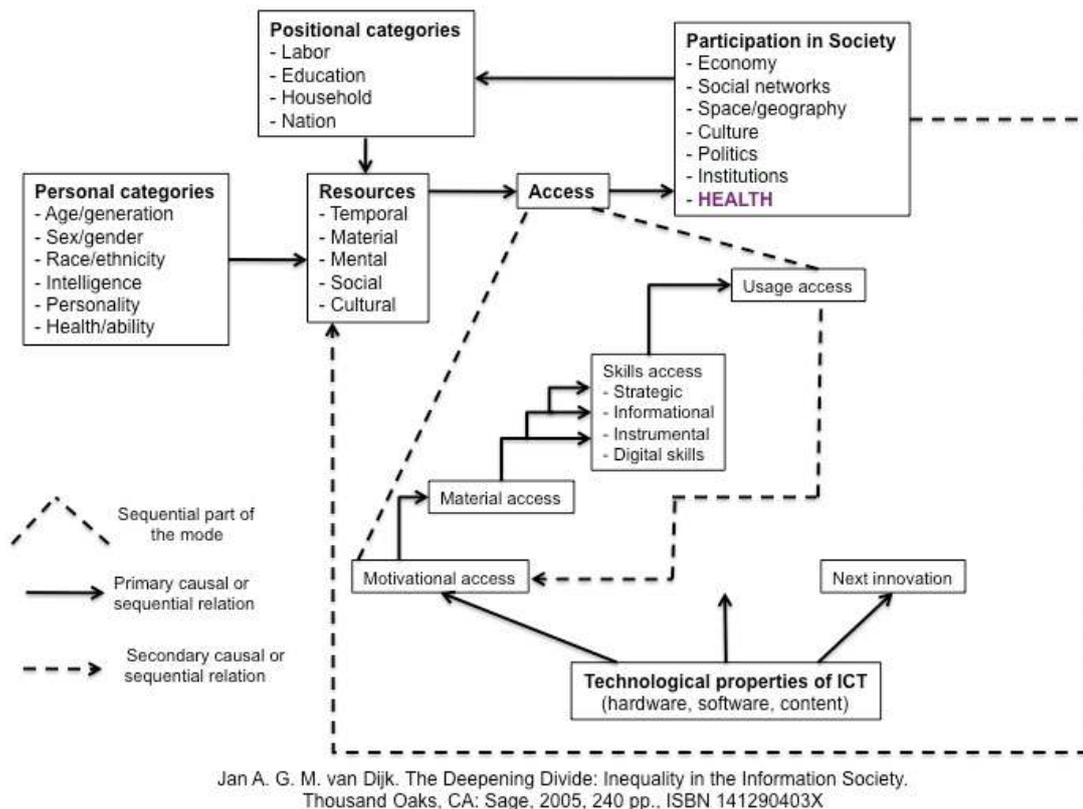


Figure 2: van Dijk's "Causal and Sequential model of Digital Technology Access by individuals in Contemporary Societies"

The model used in this framework does vary from van Dijk's by adding an element involving institutions as playing a role in digital impoverishment or its alleviation. The institution's involvement is seen in the need reflected by Phelps et al. (2006, Preparatory courses. para. 3) who state "Computer training thus presents significant challenges at both individual and organisational levels because a relevant computer education program requires more than mere skills training. It also involves changes in attitudes, values and beliefs and approaches to learning that support their continual adaptability to change (Phelps, in press 2006) and capability to keep exploring new technologies and processes". Phelps (2007) differentiates between competence and capability, stating that capability is a more desirable outcome than competence which involves rote actions and is not dependent on understanding, whereas competence fosters self-reliance. Finally, the choice to access information may also be a motivational factor, whether people try to take up all opportunities of learning or rather deliberately act out to impoverish themselves by not seeking or using such occasions. This extends the work of Vroom mentioned in Lefton (1982) which deals with the factors affecting job performance and states that Vroom's theory "suggests that motivation is determined by how people value the task" (p. 643). The model takes this notion and applies it to a digital literacy context.

The inclusion of the motivational element in this model is further validated by (Whyte, 2007) who states:

There are two aspects to lack of motivation. The first is a general disinclination to involve oneself with computers in any shape or form. People who feel this way are often ‘hands on’ and ‘out-of-doors’, and ICT technology represents an aspect of the world that they dislike, and will ignore completely if given their druthers.

The second aspect of lack of motivation can be described as, “I haven’t found a use for ICT ... yet”. People lacking this type of motivation are not actually hostile to the technology; they just haven’t found a major use for it so far. In the jargon, they haven’t yet found their ‘killer app’ – this being an ‘app’ (that is, ‘application’ or computer program) that ‘they would kill for’.

Either way, people with a lack of motivation see no personal benefit in crossing to the other side of the Divide.

This notion of digital impoverishment though rare is not without precedent with Wong (2011) writing “the digital impoverishment of parents hinders their children from making use of the full potential of the Internet”. The model then can be said to include an epistemic choice, a choice of whether to attempt to know or not. Even making this choice though will not in and of itself enable knowledge to develop.

To elaborate further: *poverty* is defined by (Oxford English Dictionary, 2011c) as “The condition of having little or no wealth or few material possessions; indigence, destitution” and *impoverishment* as “*The fact or process of impoverishing or making poor; the condition of being impoverished; loss of wealth or means; that which has this effect*” (Oxford English Dictionary, 2011b, emphasis added). Poverty in many contexts can be seen as a consequence of acts which lead to impoverishment. With regards to normal indigence, the acts will generally be external to the person experiencing poverty, but in the context of digital poverty impoverishment may be an internal act as well, sometimes exacerbated by external conditions and at other times simply a choice imposed on the self.

2.6 Conclusion

This chapter reviewed the nature of information literacy and then cascaded the practice from global to mentioning research and comments from UKZN. Thereafter it examined the nature of information literacy instruction and the value of information literacy to lifelong learning. It considered what theoretical frameworks might inform research in information literacy and information literacy instruction and finally showed a theoretical model of digital poverty and impoverishment that impacts information literacy. It provides a reflection of my understanding of the field and establishes the foundations on which my research is built.

Chapter Three: Research Methodology

3.1 Introduction

The goals of this research were specifically to ascertain how postgraduate students go about searching for information online as well as their feelings. As such the research is predominantly investigative in so far as it studies current behaviours and qualitative in that it tries to understand subjective emotions. The research process used a number of instruments, each of which is discussed here.

3.2 The Research Paradigm

The paradigm employed here is what is referred to by Reeves and Hedberg (2003) as an “Eclectic-Mixed Methods-Pragmatic Paradigm,” which they assert “it is the one approach capable of handling the complexity (some would say chaos) that is the hallmark of contemporary society and technology”. The complexity to which they refer is described by them in their quoting of Sedgwick’s 1993 article “The Complexity Problem” in which it was stated: “It is becoming increasingly clear that the comfort of a good fit between man and machine is largely absent from the technology of the information age” which they see as applicable to education related research. Reeves and Hedberg in support of this take the pragmatic view that no paradigm be dogmatically followed and that whatever tools are necessary should be used.

The eclecticism referred to deals with willingness to use methods from other paradigms in gaining information and seeking a solution, the mixed methods the use of varying tools which they state is necessary for triangulation and finally pragmatism embraces the notion that while “ultimate prediction” may not be achievable, improvement is nonetheless possible (Reeves & Hedberg, 2003, p. 35) The use of mixed methods is also consistent with the adoption of a mediated constructivism which embraces the possibilities of objective and subjective realities.

Related to this it is worth noting Wilson (1997) cited by T. Anderson (2004, p. 33) stating that “too strict an adherence to any particular theoretical viewpoint often filters our perceptions and blinds us to important lessons of reality”. This substantiates the claim of the value of eclecticism.

3.3 Methodology

Bruce (2001, p. 1) suggests that due to information literacy research being a new field that “the agenda is ill defined and suitable theoretical frameworks are only just beginning to be explored”. Given Christine Bruce’s (2001) opinion that the development of theoretical frameworks for information literacy research are still under investigation, there was no ‘one size fits all’ approach into which this research could be neatly slotted. However, from the outset the research intended to make a problem statement, review the literature around the issue, investigate the nature of the problem, make some potential interventions and review the problem again. This cyclic structure fits closely with Action Research described by Cormack (cited by Ross, 1999) as “a way of doing research and working on solving a problem at the same time”.

Bruce (2001, paras. 27 & 29) in unpacking the types of frameworks used in information literacy research does mention action research having been used. The approach therefore is not without precedent in this type of study. Vezzosi (2006) for example covers one such example of an action research approach to information literacy conducted at the University of Parma.

Gray (2009, p. 313) considers the phrase “action research” to be “generic one” which “has been used to describe a bewildering range of activities and methods”. However, it is asserted by many that action research is an approach motivated by an intention to change a problem (Gray, 2009, p. 313; Greenwood & Levin, 2007, p. 3). This is almost entirely considered as problems with regard to social justice. Almost but not entirely for as Elizabeth Henning (2004, p. 47. Emphasis added) writes “Action research has become a powerful methodology that is *usually* driven by a sense of social action.”

A tradition of educational action research exists with examples given by Levin and Greenwood (2001) and a variety of definitions placing action research in education are given by Costello (2003, pp. 3-5) to the extent that Costello concludes that action research “aims to improve educational practice”. Reeves (2000, p. 7 Emphasis added) observes that some people consider action research not to be research but “merely a form of evaluation” though he goes on to state that “it can be regarded as a legitimate form of research *provided* reports of it are shared with wider audiences who may themselves choose to draw inferences from these reports”.

Action research is iterative with reflection at the end of each cycle feeding into the next (Gray, 2009, p. 318). Henning (2004, p. 47) acknowledges though that “[i]n most dissertation studies a researcher can complete one cycle at most”.

The epistemological underpinning of action research is constructivist. Gaventa and Cornwall (2001, p. 74) state that action research “recognizes that knowledge is socially constructed and embedded” and they therefore deem that techniques to explore the collective response are appropriate to action research.

The steps in action research are researching a problem, attempting a remediation and then evaluating the attempt. It is these steps that inform the methodological approach taken.

Gray (2009, p. 333) asserts that validity in action research is obtained by feedback from peers and more experienced people than the researcher. Kemmis (2001, p. 93) refers to using Jürgen Habermas “famous validity claims”. Habermas (1979, p. 2) writes that when a person

wants to participate in a process of reaching understanding, he cannot avoid raising the following – and indeed precisely the following validity claims. He claims to be:

- a. *Uttering* something understandably;
- b. Giving [the hearer] *something* to understand;
- c. Making *himself* thereby understandable; and
- d. Coming to an understanding *with another person*. (original emphases)

Validity may also be established by the efficacy of the solutions offered. Levin and Greenwood (2001, p. 105) state “[t]he credibility/validity of action research knowledge is measured according to whether actions that arise from it solve problems (workability) and increases participants’ control over their situation”. Morse, Barrett, Mayan, Olson, & Spiers (2002) discussing validity argue that the idea of validity has been hijacked by the idea of trustworthiness stating

We are concerned that, in the time since Guba and Lincoln developed their criteria for trustworthiness, there has been (Fellrath-Archer, 2006) a tendency for qualitative researchers to focus on the tangible outcomes of the research (which can be cited at the end of a study) rather than demonstrating how verification strategies were used to shape and direct the research during its development.

Morse and her colleagues voice their concern that a post-hoc verification of findings rather than an ongoing concern for validity throughout the entire course of data acquisition and analysis compromise the research approach. They state

Within the conduct of inquiry itself, verification strategies that ensure both reliability and validity of data are activities such as ensuring methodological coherence, sampling sufficiency, developing a dynamic relationship between sampling, data collection and analysis, thinking theoretically, and theory development (Morse et al., 2002, p. 18).

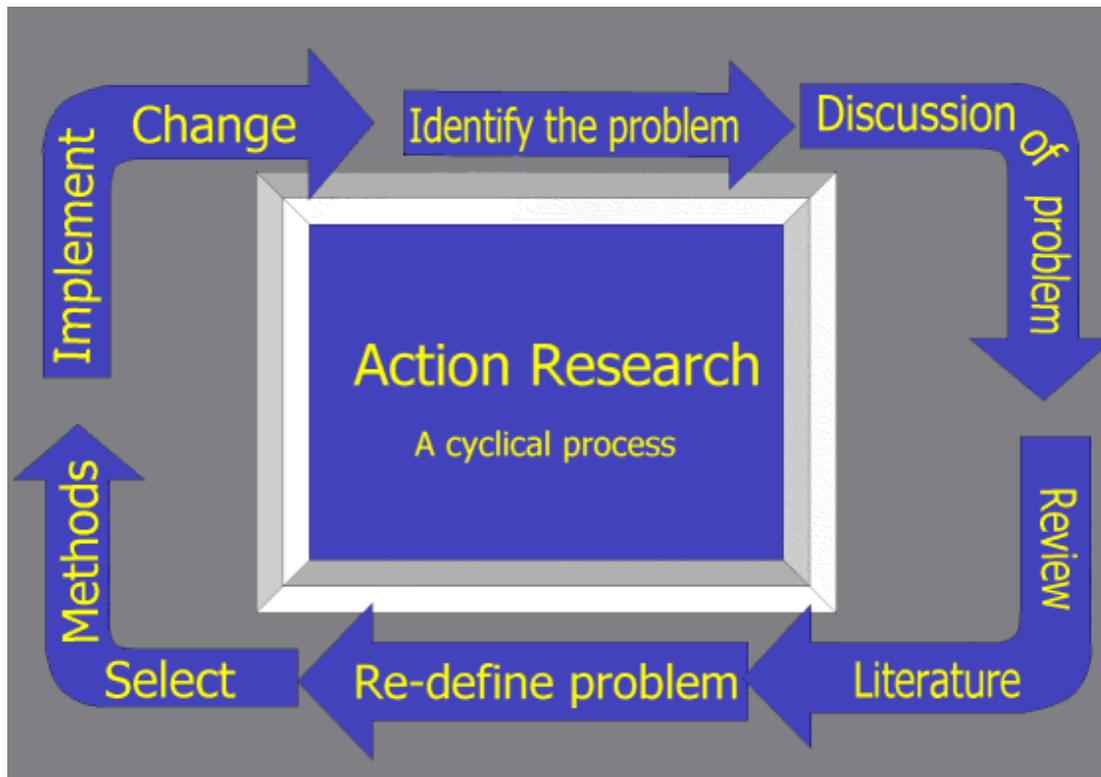


Figure 3: The Action Research Cycle (Ross, 1999, no page)

As shown in Figure 3 that the nature of action research is that it is a “cyclical process” and indeed may well loop through several iterations. This thesis though is in keeping with Henning’s observation that most theses deals with only one cycle.

If one studies Figure 3, it can be seen that action research does not prescribe a way in which the problem is researched. Within the context of this research what was under study was the *phenomenon* of the literature search using web based resources. What was under the microscope was this *phenomenon* as seen through the eyes of the cohort as they conduct and experience the search activity and for this reason the approach employed is phenomenography. Phenomenography, according to Marton (1994, Origin, para. 13), is “the empirical study of the differing ways in which people experience, perceive, apprehend, understand conceptualise various phenomena and aspects of the world around us”. It is therefore accurate to say that this

study is action research underpinned by a phenomenographic study of literature searches in this group.

Crucial then is the question “What does a phenomenographic study bring to the action research that another approach does not?” By attempting to interrogate what Marton (1981, p. 178) calls a second order perspective through which “we orient ourselves towards people’s ideas about the world (or their experience of it) and we make statements about people’s ideas about the world (or about their experience of it)”, it is hoped to understand how people understand and experience the phenomenon of the web search and that this understanding will lead to ways of remediating information literacy “deficiencies”.

Phenomenographic research analysis may according to (Morris, 2006) follow either a “discovery” approach or a “construction” approach. Citing Walsh, Morris terms “discovery” as neutral and “construction” as imposed when the researchers own perspectives are brought to bear on the data analysis. Phrased otherwise the difference between the two approaches may be considered a decision to bracket or not. Bracketing is described by Morris as “suspending the researcher’s existing conceptions, assumptions and expectations to enable them to approach the research process in a neutral way in order to facilitate achievement of as ‘true’ a picture of the participants experiences and perception as possible”. (Morris, 2006, p. 10)

Given these differences, I select in as far as possible to use a discovery approach and bracket my preconceptions regarding what I believe are the deficient use of tools and the cognitive elements involved in searching.

3.4 Methods

The study used both qualitative and descriptive methods. According to Bryman (2006) and Siegle (Undated) quantitative work deals with the generalisable and qualitative with the specific.

The approach used in the study entailed the following steps given here briefly and discussed in more depth under subsections dedicated to each.

1) Descriptive data was gained from a general questionnaire circulated to this entire cohort. This convenience sampling is a non-probabilistic sampling method and is used “for research aimed at generating universals” (Palys, 1997, p. 137) and is intended to serve that purpose.

2) It was intended to identify through this survey twelve students divided as follows:

- three South African students who are English first language speakers
- three South African students whose first language is one other than English
- three International students who are English first language speakers
- three International students whose first language is not English.

This approach is of interest given information mentioned by Hughes (2005) who talks of a foreign language student searching for information on effective public speaking rejecting an article titled *Eleven commandments of public speaking* due to not realising that the word “commandment” could denote anything other than a religious directive and thus believed it to be irrelevant to the particular search effort. Also critical to the local situation is Choonoo’s (2000) recognition of the barriers faced by those searchers who are not first language English speakers. The envisaged selection here was designed to interrogate these language differences.

However the respondents’ profiles failed to allow this selection and as a result the numbers differed from those hoped for.

3) Observation of the participants’ practice followed by an interview with each. The observation was done by recording their search processes using software which recorded the screen activity on the computer as well as permitting the students (equipped with a microphone) to record their feelings about the task as well as their approaches to the search. The interviews were semi-structured with a small number of fixed questions.

4) The establishment of a base condition through the interrogation of the data gathered up until this point and from this the formulation of a workshop based on needs uncovered in this analysis.

5) The conducting of a training workshop for these twelve plus any others from the cohort who would like to join.

6) Invitations were made to the Howard College library information officer and subject librarians for written submissions concerning conceptions and perceptions of information literacy at the University regarding its current state and ideas regarding the future of information literacy at UKZN as well as providing best practice descriptions to use as a baseline for comparison with learner approaches.

Tying this to elements of the action research approach, one can resolve the phases and instruments as follows:

Research Portion	Research Instrument	Notes
Problem Identification	Survey	If no problems are identified then no intervention and subsequent evaluation is required. This then is a possible exit point for the research.
	Interviews	
	Observation	
	Submissions	
Intervention	Workshop	

Table 3: Research Stages

3.5 Tools

This research utilised several different methods of gaining information.

3.5.1 Questionnaires

Myers (1997) holds that questionnaires are positivist in nature seeking to quantify conditions, describe reality numerically. This approach holds that there is an observable reality which admits to being numerically expressed. Yet surveys within an eclectic approach are not held to be absolute descriptors of the human condition, but rather an instrument used to broadly examine the state of that which is being studied, to establish a baseline, a floor from which to take the exploration further. This survey sought to cover four areas - respondents' perceptions

of their skills, their search practices, the cognitive elements of their search approaches, and their affective responses to searching.

The survey was conducted on line using the web based survey package LimeSurvey and the data captured into SPSS™ version 19 and analysed using the same.

3.5.2 Observations

Search activities were recorded using software called Buelent Screen Recorder. This package captures screen activity such as mouse actions, keyboard input and web page changes to be recorded as a video. In addition, and critical to this research, the software is able to record comments and statements from the user effectively providing a soundtrack to the video. This therefore allows the observer to record the voice of the participant thereby capturing thought processes and emotional reactions when the search process is being conducted.

3.5.3 Semi-structured one-on-one interviews

Yet despite positivist claims to the contrary surveys cannot capture and delineate reality perfectly or entirely (Firestone, 1987). Each person brings their own views to a topic and these sedimented views will for them be reality, for as Marton (1981, p. 182) states “Whatever an individual feels that he knows contributes to his actions, beliefs, attitudes, modes of experiencing, etc.”

These interviews sought answers to three questions:

- How do you search?
- How do you feel when you search?
- How do you judge what you find?

These interviews used the screen recordings created in the previous stage as a basis for discussion and in this way each participant becomes active in creating the solution. This is a key element of the action research paradigm.

These interviews were analysed using the qualitative analysis software package, NVivo™ 9.

3.5.4 Intervention

The intervention gave rise to a number of comments which have been used in discussion. These comments were seen to shed light on the student experience and perceptions of information literacy.

3.5.5 Submissions

An examination of information literacy would be incomplete without some input from those most intimately connected with its practice and therefore selected librarians were invited to comment on information literacy at the university. Of concern are their experiences of the phenomenon as practitioners and how they perceive the quality of information searching amongst the cohort, the level of faculty or institutional commitment to information literacy and what they consider best practice. Their concept of best practice would be what Marton (1981) refers to as the “authorized” view.

3.6. Research ethics

An ethical requirement of research at this university is that each participant be guaranteed confidentiality. Permission to undertake this study was sought from the University Research Office as an initial step (see Appendix A) and once it was granted permission of all participants including staff members and learners was requested (see Appendix B). I agreed to treat participant responses confidentially in order to protect their identities and further agreed to share my finding with them, either directly or indirectly through publication of this thesis.

Each of the stages of the research contained a separate consent form intended to reassure participants of confidentiality and each participant was required to sign consent for each instrument at the time it was conducted. They were free to withdraw at anytime and no financial incentives were provided for participation.

Each participant was given a unique identifier of the form - Participant followed by a single number. This identifier was used in coding and the writing up this thesis.

At the end of the research, surveys with names and e-mail addresses removed, screen casts, and audio recordings into a file which was password protected, burned to two CDs. One CD has been stored at the appropriate office at the University and the other kept by myself for a minimum of 5 years.

3.7. Data management and analysis

The variety of instruments employed in the beginning ensured the possibility of triangulation with the instruments designed to build on and compliment each other. Each type of data was analysed with the assistance of the appropriate software and comparisons made between the data for both similarity and differences.

3.8. Conclusion

The research conducted here is in line with the eclectic-mixed-methods-pragmatic paradigm, utilizing both quantitative and qualitative methods.

Chapter Four: Data Collection and Analysis

4.1 Introduction

At the beginning of this research the intention was to collect the initial data through an online survey, sent to the whole postgraduate cohort the study was aimed at. A survey was drawn up and advertised on the University's e-mail based notice system. However, this failed to attract sufficient respondents and as a result I turned to purposive sampling to gather a larger number of responses.

4.2 Researcher's bias

Critical to phenomenographic research is the concept of bracketing which according to Morris (2006, p. 10) "involves suspending the researcher's existing conceptions, assumptions and expectations to enable them to approach the research process in a neutral way in order to facilitate achievement of as 'true' a picture of the participants experiences and perception as possible". This picture is referred to by (Marton, 1981) as a second order perspective which details the conceptions of others, while that which must be bracketed out is first order perspective where "we orient ourselves towards the world and make statements about it".

In keeping with this, the perceptions I have of how others will consider the phenomenon of using browser based resources for searching for literature are:

- 1) The resources they use will be limited in most cases and the way in which they use those resources will be
- 2) That in many instances they will be aware of their limitations yet not be overly concerned with it, the acquisition of literature being more important than the quality of what is found.

4.3 Population sample and size

The population size taken from numbers given by Division of Management Information - University of KwaZulu-Natal (2011) was 1076. An effort was made to sample the whole population using convenience sampling by e-mailing details of an online survey. This yielded very few responses and purposive sampling was used in a second run of the survey.

4.4 Data collection

Each of these instruments and the data gathered is presented below.

4.4.1 The Questionnaire

Introduction

Two surveys were conducted. The first was sent out as a request to the population targeted in the original research proposal and yielded only 15 responses of which eight were useable. It was therefore decided to engage in purposive sampling and with agreement of the Department of Development Studies, students participating in the course “Poverty and Inequality” were targeted and surveyed in addition to the original responses. The two surveys yielded a total of 31 responses, ten of which could not be used, respondents either being from a faculty other than the one being researched or answering to few questions to be considered for inclusion, leaving 21 of the 31 which were useable, therefore $n = 21$. Eighteen respondents were Masters students and three were Honours students.

Prior Training and Knowledge

Only seven of the 21 indicated that they had received training of any nature in searching the web as undergraduates, three describing their training in the following ways: *‘Training to use Jstor, Lexis Nexis and other subscriber research sites; training about how to distinguish reputable from disreputable free online sources (e.g. follow through all wiki footnotes to check for authenticity)’* and *‘I’ve been given websites to go to to retrieve information good enough to*

go into a reference page,’ with the third describing a perfunctory ‘*Librarian showed us the DUT iLink page.*’ One who did not receive training pointed to lack of resources as the issue, commenting ‘*Since the institution did not have student computers, we were generally asked to acquaint ourselves with information search.*’

Of the group, nine had received training in searching the web for literature and 12 had not. Given that seven of the respondents had received training as undergraduates, this means that two additional learners had received training as postgraduates. Three of the nine who had received training received it for an hour or less and the other two for a period between one and four hours. Five respondents who received training considered that the time was adequate and six felt it was helpful. The 1 who felt it was not helpful stated ‘*It was not, because [sic] we were just told to go to google scholar or UKZN library E-Text*’ while one of those who considered it beneficial wrote ‘*To a certain degree yes. However, more time needs to be spent to experiment with the system.*’ The other two did not comment.

A cross-tabulation of those who received training as undergraduates and the institution shows that the University of KwaZulu-Natal and its former constituent universities (the University of Natal and the University of Durban-Westville) seem to be lagging when it comes to providing undergraduates with training in this area with only two of the seven indicating that they had received training as undergraduates coming from UKZN. This means that two of 12 or 16.67% from this University had received training in searching as opposed to 5/9 or 55.55% of non UKZN learners who received such tuition. The five institutions where learners reported some form of training were Harvard University, Durban University of Technology, Oslo University College (where a second respondent reported not having received training as an undergraduate), Zambia and Concordia University.

Institutions		Receipt of formal instruction as an undergraduate		Total
		Yes	No	
Undergraduate institution	Other	5	4	9
	University of Durban-Westville	0	1	1
	University of KwaZulu-Natal	1	9	10
	University of Natal	1	0	1
Total		7	14	21

Table 4: Undergraduate instruction in searching by institution of study

Twenty of the 21 used the Internet to search for academic literature. Browser choice was split mainly between Internet Explorer, Firefox and Chrome. Some of the comments to the question ‘Do you use any other browser besides those listed above? If yes please name the browsers in the comment box,’ elicited responses that give further credence to the notion that people who believe they know what a browser is, may not always know, with one respondent stating ‘*GOOGLE SCHOLAR*’ and a second writing ‘*YouTube, Yahoo, Google, Facebook,*’

For all except one of the respondents their use of the Internet was not related solely to their studies. Eighteen of the 21 answered that they knew what was meant by the term web browser and yet in some instances the answers showed that they may not have understood the term, for example ‘*its an area on the internet where one can check out information, add bookmarks, easily access.*’ and ‘*I beleive [sic] its using the internet for any purpose.*’ Others however were more accurate stating ‘*Interface program that you use to browse the internet, eg. Firefox, Internet Explorer*’ and ‘*Software that allows me to view pages on the internet*’.

The table below indicates the time spent of instruction and whether it was considered adequate. A slim majority considered the time spent on training was adequate with only the group who had received half an hour or less feeling it was inadequate.

Time	Was time adequate		Total
	Yes	No	
Time Spent 1-30 minutes	1	2	3
31-60 minutes	3	1	4
61 minutes - 4 hours	1	1	2
Total	5	4	9

Table 5: Time spent on training and considerations of adequacy thereof

Language and Nationality

Eleven of the 21 respondents were South African and of the 11, 7 were English first language speakers and the other two gave Afrikaans as their first language.

Nationality		English first language		Total
		Yes	No	
South African	Yes	7	4	11
	No	2	8	10
Total		9	12	21

Table 6: Nationality and English as first language.

It had been my intention to identify three people from each cell of the above matrix to involve in the subsequent instruments in the research, but as can be seen from the table above only 2 non South Africans who were English first language speakers responded to the survey.

Respondents were asked to list three electronically available journals in their discipline from memory. There is no way of knowing whether they did not look up the information but, a graph of the number answers given by each of the respondents is shown below.

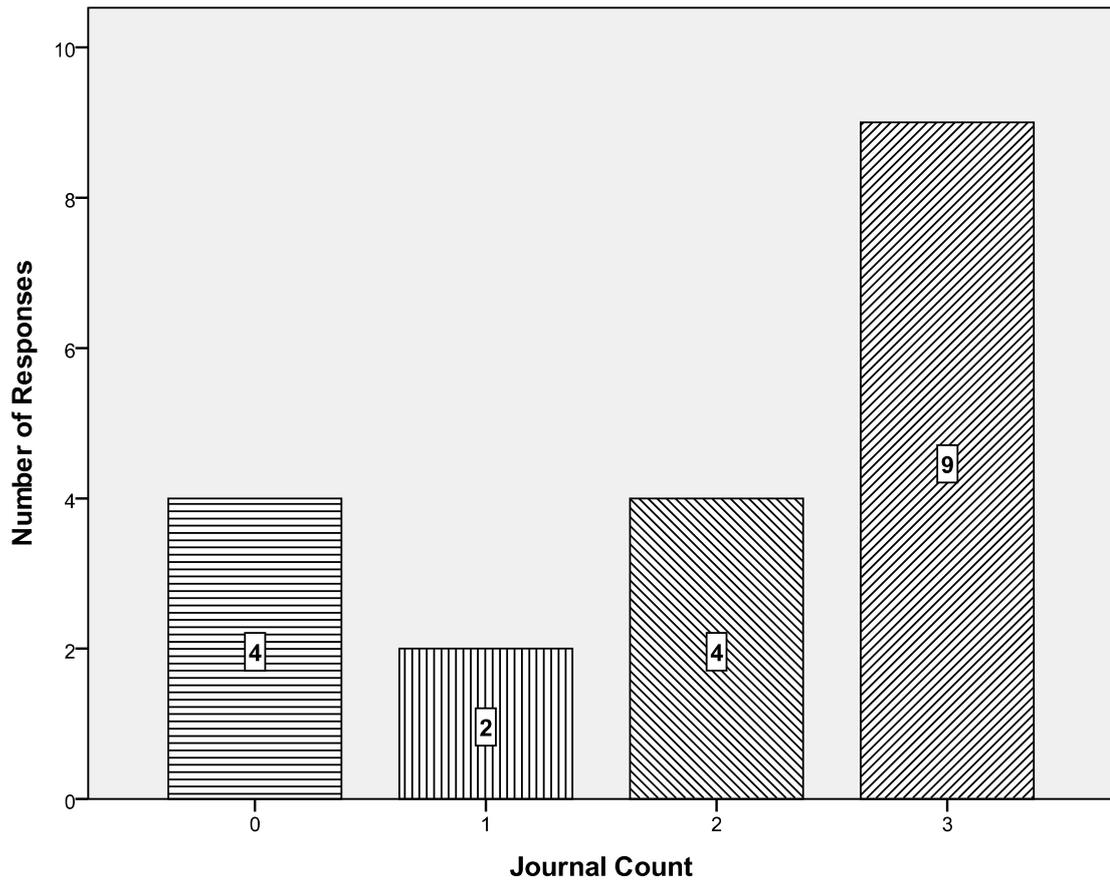


Figure 4: Number of Journals listed (Maximum of three required)

The purpose of this question was to gain a little insight into the participants' level of engagement with the literature in their domain, the assumption being that the more engaged they were the more journals they would be able to name. 43% of the respondents were able to name three and 19% none. Two people who are not reflected in the graph above gave answers which were not journals, one listing science direct, Jstor and sabinet and the other "Jastor"[sic].

Internet Usage and Searching Skills

Respondents' perceptions of their searching skills yielded the following frequencies:

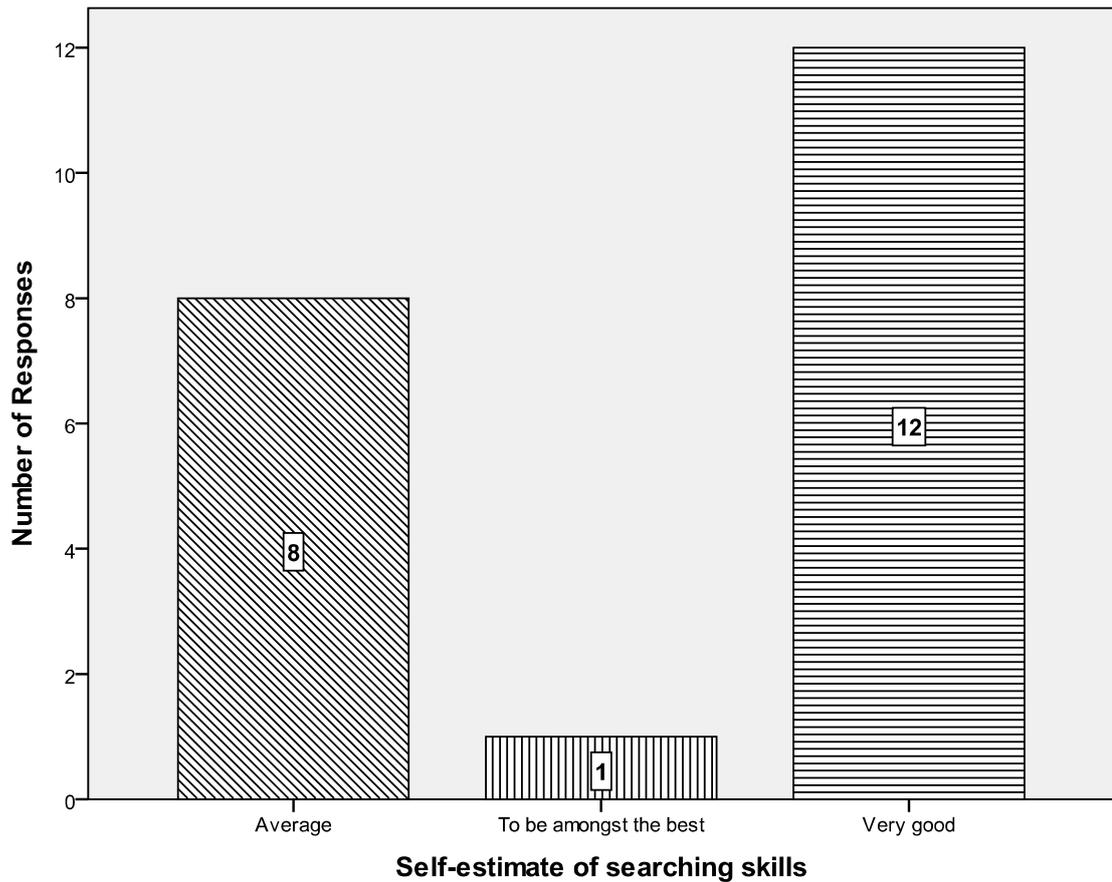


Figure 5: Participants Ratings of Their Search Skills

Yet despite the expressed confidence in the above graph, a large majority felt that they could benefit from further training.

Search skills		Benefit from further training		Total
		Yes	No	
Own rating of searching skills	Average	8	0	8
	To be amongst the best	0	1	1
	Very good	11	1	12
Total		19	2	21

Table 7: Further training beneficial

The question “Please list all the web resources (such as search engines and databases) that you commonly use to find literature. (Use either the name or address):” revealed usage of search and databases to be broken down as follows:

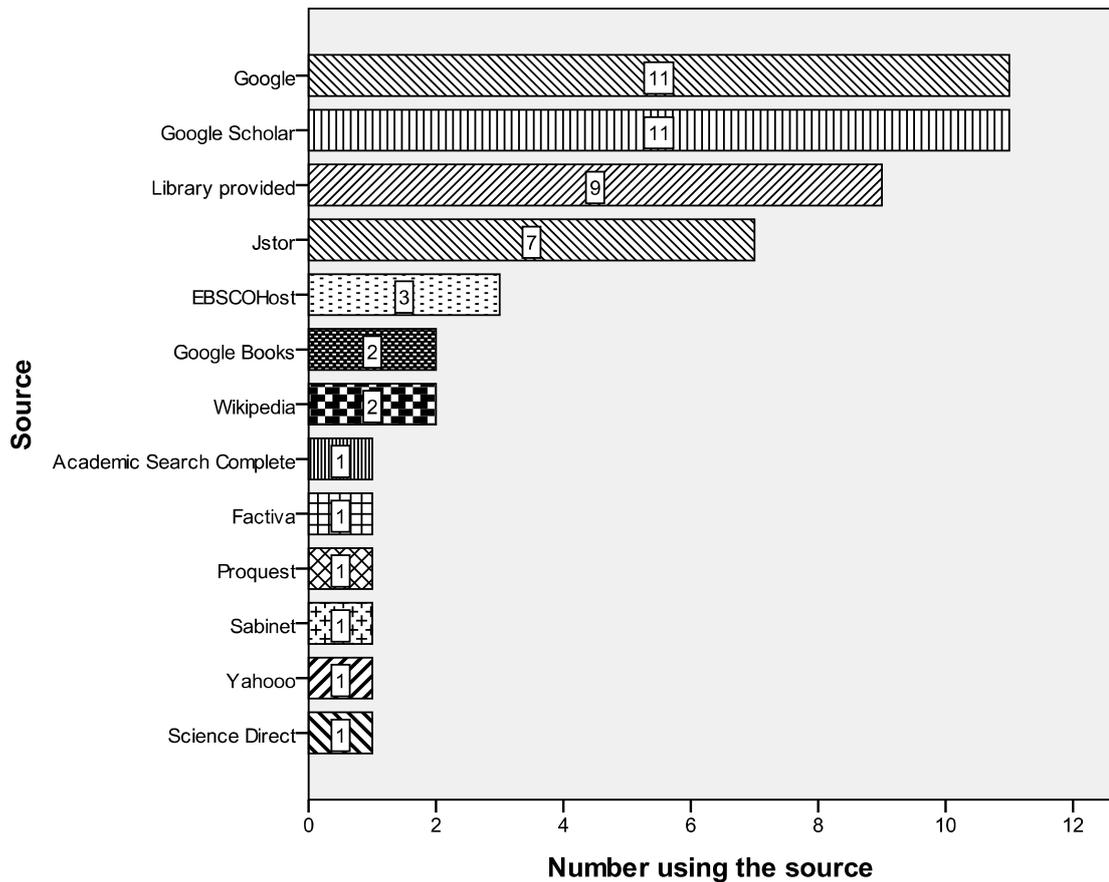


Figure 6: Number of respondents using various sources

It is worth noting that 18 of the 21 respondents used at least one Google provided tool. In varying measure all used the advanced search facilities for searching and 7 of the respondents used help facilities. It is also necessary here to note that these are sources as given by those responding to the survey and for this reason does subsume any one into another. For examples while access to ScienceDirect may be provided by the library, it was specifically named and therefore counted as separate from the library/

Question 25 asked ‘Given the question “What ways are there of developing the potential of disabled children?”, list the search terms you would used to find literature to research this

question?’ and the answers given for the most part show a limited use of synonyms and thought entered into, for example “*Disabled children*” or “*challenged children*” or “*children with with [sic] impairments*” and “*methods to improve child's potential*” or “*therapy improvement*” or “*therapeutic methods*” and ‘*RESSOURCES [sic] + DISABLED + CHILDREN*’ are two examples. One respondent used a larger number of terms and wrote ‘*child, children, kids, youth, young adult, handicaped [sic] , disabled, promote, develop, methods, ways,*’ One did pick up on the fact that the question was nebulous saying ‘*The statement is not clear... potential in what?*’ The question was deliberately vague in order to allow the respondents more scope in giving the search terms. One respondent wrote in response to the question ‘*a web browser to indicate exactly the sources to which one can access academic resources*’ and this may be indicative of the respondent not taking the question seriously or as an indication of an incomplete understanding of what was required.

Six respondents gave Google as their first tool for searching, five gave Google Scholar, two listed JSTOR, two the University library and one Google Books and one for EBSCOhost. For second choice, six cited UKZN, four mentioned JSTOR, two Google and two Google Books. One gave the Mail and Guardian as their second choice. Of the respondents ten were able to list three journals they used and four did not list any journals either by choice or inability.

Twelve indicated that they kept notes about their searching. Eleven used Electronic Theses and Dissertations Repositories (ETDs), with five indicating they were unaware of ETDs and seven used Open Access journals and eight recorded that they had not heard of open access journals.

Sources of Help and Responses to Searching

Help Source	Count
Lecturer	10
Supervisor	6
Fellow Student	11
Friend (Not a student)	5
Subject Librarian	9
Partner/Spouse	4
Parents	0
Sibling	1
Other	3

Table 8: Sources turned to for assistance

More than half (16 of 21) were satisfied with the results of their search 60% or more of the time and a similar number found searching enjoyable. Despite so many feeling content with the results of their search, 19 of 21 felt that they could benefit from further training. Considering this number and that 12 of those who felt they were better at searching than their peers, formed part of the group interested in a workshop and it seems evident that they are aware of the importance of the value of improving search skills. 5 indicated that they often or very often felt frustrated in the search and 14 reported that they sometimes, often or always felt overwhelmed by the number of results returned.

The following issues arise from the analysis and were taken into the intervention:

- The widespread use of Google in one form or another because Google and Google Scholar lack the ability to refine a search in the way that the Journal databases allow

- The lack of awareness of ETDs and Open Access Journals which limits the extent of what can be found
- Limited use of synonyms which reduces the scope of the search
- Opportunities to gain hands on experience when being trained would be beneficial.

4.4.2 Screencasts and Interviews

Participants were required to perform five tasks related to the acquisition of information. These were:

- 1) Find the article titled "Evaluation of Comprehensive Treatment Models for Individuals with Autism Spectrum Disorders" published in 2010 in the Journal of Autism and Developmental Disorders.
- 2) Find the article titled "Health-related quality of life in parents of school-age children with Asperger syndrome or high-functioning autism".
- 3) Arrange for Google news to send you updates on "Darfur".
- 4) Find three good quality texts on the topic of "Student Perceptions of Intellectual Property"
- 5) Setup a facility to get either Emerald Insight or ScienceDirect to send you notification of new articles on a topic of interest to you.

The participants were informed prior to starting that I would provide technical assistance such as problems with the browser, if necessary, but none with searching.

As noted earlier it had been intended to engage 12 people to participate and to have been selected to fulfil the following criteria:

- three South African students who are English first language speakers
- three South African students whose first language is one other than English
- three International students who are English first language speakers
- three International students whose first language is not English.

The poor number of responses militated against this and the eventual selection was as follows:

Language	South African	Non South African
English First Language	3	0
English Not First Language	2	2

Table 9: Participants Language and Nationality

It should be noted here that P3 and P6 stand apart from the other participants because they have both been involved in training others to search for information. P3 informed me that she had taught information literacy to students in the science and engineering access programs and P6 as a librarian has had exposure to information literacy and to the issues of teaching it and the state of it at this institution as well.

The first two tasks were intended to test basic searching skills. The fact that the task was rigidly defined contradicts some of the tenets of constructivism, but this is defended by the need to effect comparisons on the same task and therefore the task was precise. The third was an exercise in how to receive updates on a news topic without continuing to seek it. The fourth sought to understand how participants determine quality as well as the use of synonyms and the final one mirrored the third but employing journals rather than current events.

Table 10 shows the number of second each participant took to complete each of the five tasks, with the final column “Video Time” being the length of the entire screen casts shown as minutes and seconds (Minutes: Seconds).

Participant	Task 1	Task 2	Task 3	Task 4	Task 5	Video Time
P2	142	59	176	259	251	14:55
P3	79	32	172	174	228	12:16
P4	30	19	64	82	243	08:21
P5	48	52	62	234	54	07:50
P6	60	78	260	85	90	10:07
P7	31	20	N/A	127	N/A	04:05

Table 10: Time per task per participant in seconds

Unfortunately, due to an error, the first screencast (P1) was not recorded. Immediately after each screencast, the participants were interviewed. The interviews were recorded using the voice recording facility of my cell phone and then uploaded to my computer and converted from the amr format of the recording to a wave (.wav) file. P7 chose not to attempt either task 3 or 5 and for this reason, durations are shown as N/A in the table. The conversion was necessary to allow the interviews to be imported into and analysed using NVivo™ .

The length of the interviews varied from 5:02 and 24:33 minutes.

The screencasts and interviews are discussed together in this section because the discussions for the most part centred on the tasks just completed. Any matters covered in the interviews beyond the exercises follows after the tasks are discussed.

Tasks 1 and 2

The routes taken to find the two documents varied as per the chart below:

Participant	Task 1	Task 2
P2	Google/Jstor	Google
P3	Google Scholar	Google Scholar
P4	Google	Google
P5	EBSCOhost (Advanced Search)	EBSCOhost (Advanced Search)
P6	UKZN Library Journal Search Engine	UKZN Library Journal Search Engine
P7	Google Scholar	Google Scholar

Table 11: Search Tools used in tasks 1 and 2

The degree to which Google or Google Scholar was used here was not surprising given the survey responses shown in Figure 6 on page 36. The combined use of Google and Jstor by P2 in task 1 is designated as such because of the search terms used in Google by the participant of “*JStor "Evaluation of Comprehensive Treatment Models for Individuals with Autism Spectrum Disorders"*”.

P6, a librarian at UKZN as well as part of the student cohort stated in the interview afterwards, *“I just found that having had the exposure to searching on the web more frequently and it being part of my forte, searching information, it put me in a positive state I would think and I would have used...did use some shortcuts. I mean I knew where the journal databases were and I mean, you know I could locate them with ease. I didn’t have to search incessantly and go back and forth and things like that”*. Despite the confidence she expressed, her time was slowest of the participants in task 2 and second slowest in task 1.

P3 commented during these tasks, *“I hate this UKZN e-text thing because it is never clear which link you should click on”*. She also noted that the Google Scholar lacked the ability to refine the search in the way that searching using the database search engines which provided the facility to search specific fields such as abstracts, could. A side by side comparison of the advanced search of tools of Google Scholar and ScienceDirect shown in Figure 7 to demonstrate the validity of her observation.

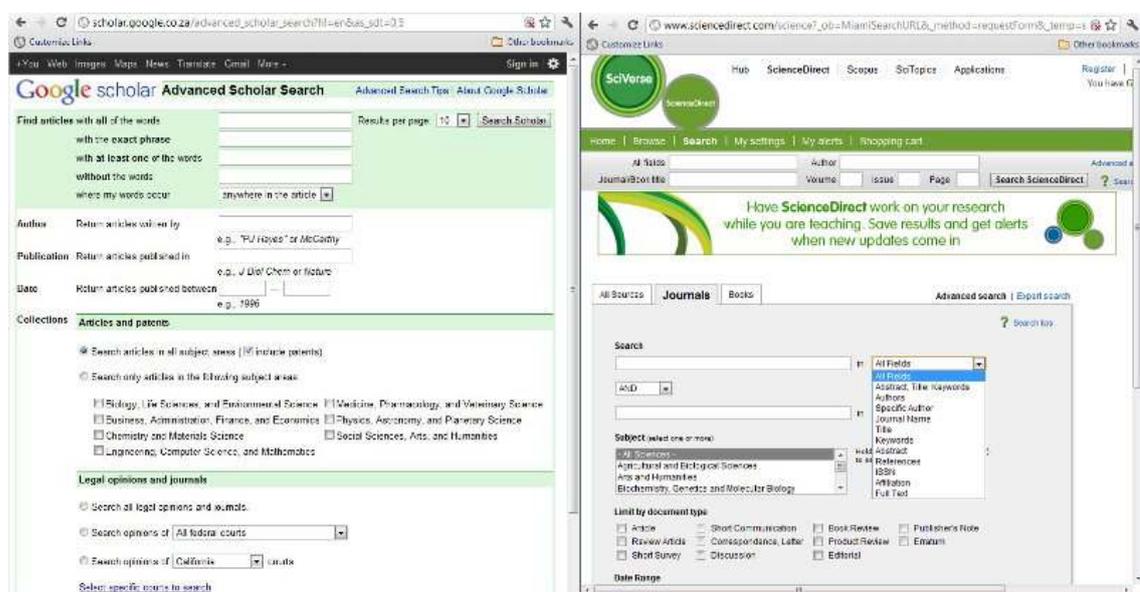


Figure 7: A comparison of the Google and ScienceDirect Advanced Searches.

Despite her recognition of this she did still, as noted in Table 11, use Google Scholar as her choice of search tool.

Task 3

Task three required the participants to create a news alert in Google News to have news items on Darfur sent to them. This was a task where some participants did prove better than others, and a number of things stood out. First was the use by some undertaking the exercise, of

searching for a solution to executing the task. This was in contrast to P7 who did not know how to do the task and therefore did not try, saying “*Three and five. I didn’t know how to do that exactly,*” and on being told that others in a similar situation had tried to find out how to do it, responded “*I didn’t know I could do that, actually*”. The other notable feature was the performance of P6, the librarian who uniquely used the UKZN Library Search Journal in tasks 1 and 2. P6 was dislocated from her area of experience in this task. She took 4 minutes and 20 seconds to complete the task and in contrast to others who did Google searches for details on how to do this, she engaged in what may best be described as a “rummaging” activity, clicking on various help related links.

Task 4

The idea behind this task was to attempt to understand participants’ perceptions of what constituted a quality text as well as examine the use of synonyms. The use of synonyms was limited with most of the participants simply copying and pasting the phrase “*Student Perceptions of Intellectual Property*” into Google or Google Scholar.

With reference to the definition of a quality text, most participants considered peer review to be the most important with the credentials of the author somewhat less so. P1 mentioned that while peer review was important, he also tended to look for “*the so-called, non-mainstream, radical authors and those are not usually peer reviewed*”. P2 when asked whether peer reviews was his only criteria, stated it was not and indicated that he read the introduction, conclusion and bibliography as part of judging quality, giving his reason for considering the bibliography as “*especially if you’re in the field already, you can see what the bibliography is and what this guy’s sources are,*” and went on to say “*there is a lot of peer reviewed stuff is not I wouldn’t say not quality, but not the quality that I want*”.

P2 also spoke of using Wikipedia, saying that if he didn’t know the author of a prescribed reading for a module, he checked Wikipedia because “*if the guy’s in Wikipedia, then you know he’s done something*”. He went on to say “*I use Wikipedia all the time. I have no skaam. In first year, people said don’t used Wikipedia and I was like ‘What’s your problem?’ You use Wikipedia, you read the article, you go straight down to the bibliography, follow the sources and use that*”. He did note though that Wikipedia became less valuable “*the more abstract and technical I get with my line of enquiry*”.

P3 mentioned the reputation of a journal as well as whether it was international or local, saying “*though in some instances I might want a local journal*” and also stated a preferences for “*certain journals, that I like*”. Author reputation was also considered important though she also noted that some authors were considered to be inviolate and that questioning their reputation was anathema and expressed concern on the effect that had on critical consideration of their

works saying “*You can’t have your own thoughts about it. How dare you disagree with Karl Marx, you know in Sociology 101*”.

P5 by contrast simply considered journals and academic books to be quality texts and some of what could be found in Google Scholar, “*but not all of them*”. She noted as well the value of Wikipedia as an introductory source of information.

P6 when asked about good quality texts described physical characteristics such as layout and typeface and not the academic value except for mentioning whether it was well referenced. P7 considered the title of the text and the abstract. When asked about peer review she responded “*Oh, I don’t know. Like when people review certain articles?*” Pressed further she did acknowledge that she had been unaware of the peer review mechanism.

Encapsulating the discussions arising from this task, participants determined quality by:

- Peer reviewed articles
- Bibliography in the article
- Personal perception of the article
- Author mentioned in Wikipedia
- Published works
- Physical characteristics.

Task 5

This task was similar to task three, and required participants to create a search alert in either ScienceDirect or Emerald Insight for a topic of interest to them. It was intended to be a more complex version of the Google News alert task and one located more completely in an academic context. Here again, various participants who did not know how to do this, used Google to search for solutions, the sole exception being P7. Even though the task paralleled task three in nature, P6 back in familiar territory was noticeably faster than all but one participant.

Most of the participants noted that prior to this, they had not been aware of the databases.

Additional issues

All participants with the exception of P7 stated that they had learned from the exercises, specifically tasks three and five. P6 however stated this only for task three. P7 as stated did not try those tasks and so could not make the statement of having learned something.

Some participants raised the issue of information literacy training. P4 indicated that she felt that searching skills *“should be part of the prospectus or when they are doing orientation. None of this is brought up”*. P2 noted *“I really think that the University is dropping the students. They’re not really giving them the tools to do this,”* and added, *“these kids have no idea how to use a library”*.

P3 spoke of having had to skill herself in what she now considers elementary tasks such as downloading a PDF (or Acrobat file) from JSTOR. In a similar vein she noted that students were told there are electronic journals, *“but are not shown how to access them step by step”*. She mentioned students being unable to save to flash drives and not knowing how to use the library. She also commented *“it really irritates me that people can get to postgrad and they don’t know how to reference”*. She also noted as did P2 that many lacked knowledge of how to use the library.

P6 indicated that from a librarian’s perspective, one of the *“huge challenges”* was that many were mature students *“engaging in study now, after many years, and the information economy has changed in the way it disseminates it’s information”* stating, *“they have to re-educate themselves ... over and above the fact they have to be computer literate”*. She continued saying, *“Being computer literate is just not enough anymore. You need to know, you know all the various kinds of software that will enable your research journey to be that much less of a challenge”*. Questioned on the perceived divide between academics perceptions of information literacy and those of librarians, she commented, *“I think the greatest problem is that there are expectancies on either side – academics and the library staff, the librarians. There has not been a clear cut explanation or defined guidelines as to look, this is what we are responsible for and this is how far we will go and this is our territory and this is you and your territory”*. She spoke of dealing on a *“daily basis... postgraduate students struggling with literature surveys”* and went on to talk of the possibility of working together to *“perhaps create platforms that may serve the students”*.

P6 also went on to talk of undergraduates coming in as first year students and there being a divide between their search and research skills and the expectations of lecturers. She mooted the idea resolving this with *“even if it is an eight credit library education or research education module for first years, for freshmen to get their feet in the door”*. She felt that such a course should be mandatory and noted that *“buy in”* was the greatest challenge.

The following issues arise from the screencasts and discussions and were taken into account in the intervention:

- A limited notion of quality which leads to poor decisions in selecting texts
- The lack of awareness of library databases which limited the possibilities of what could be found and the possibility of a more refined search than that which Google tools allow.

Chapter Five: Problem Redefinition and Intervention

5.1 Redefining the Problem

Originally, the problem was considered to be that searching skills in this cohort were deficient. Considering the results of the screencasts and that all of the participants completed tasks 1 and 2 in a rapid time, it seemed that the first element of a search – finding information was not a problem. The problems as shown by the instruments leading to the redefinition phase of the action research cycle were seen to be:

- The widespread use of Google in one form or another which while yielding results lacks the granularity of database searches
- The lack of awareness of ETDs and Open Access Journals
- Limited use of synonyms
- Understanding of quality
- The lack of awareness of the journal databases
- The lack of opportunity for hands on practice.

What is seen in the above list can be placed in three categories:

- Lack of knowledge about available resources with a focus on just one tool
- Limited synonym use
- Superficial Source evaluation.

The lack of opportunity is not seen as a information literacy problem, but as an issue in the way information skills training was delivered. Other issues arose outside the scope of the intervention such as referencing and computer skills, but it was not in the scope of the research to investigate and remediate these areas.

5.2 Designing the Intervention

Participants had demonstrated that they found the search element easy using Google tools and therefore searching was not an element of the intervention. The elements the workshop included were:

- A demonstration of two databases, the Directory of Open Access Journals as well as *Electronic Theses and Dissertations at VT*, followed by a discussion comparing them with Google Scholar

- A demonstration of a free software package which could aid with finding synonyms
- A discussion about quality of sources.

Considering that at least one element – source evaluation – was an issue of cognition, it seemed that a workshop in the nature of show, tell and practice (even if the tasks were authentic) was not the best solution, but that rather an intervention rooted in dialogue was called for. Knezica, Wubbelsb, Elbersb, and Haje (2010) hold that Socratic dialogue is constructivist, stating that it provides a “common construction of knowledge” (p. 1110). The dialogical nature of the intervention allowed the sharing of thoughts in a way that allowed the attendees to learn from their peer group in a manner that makes use of the Zone of Proximal Development. Hornsby and Maki (2008) give the value of this approach as being “[t]he cognitive dissonance created by Socratic dialogue irregularities encourages development of students’ logical abilities and improved patterns of thought” (p. 392).

The databases selected for demonstration were ingentaconnect [sic] and EBSCOhost. They were selected because they both permit access to many journals pertinent to the cohort under investigation. They were demonstrated and learners given the opportunity to run their own search in parallel, with a discussion following.

WordWeb, a free application, was used to show how synonyms could be found and used in a literature search.

Finally, students were shown two documents intended to initiate discussion about quality. The documents were

- A ladder of source value
- Pasteur’s Quadrant.

Both of these are shown in following section.

The databases section and the quality portion were dialogic in nature and therefore in keeping with constructivism for the reasons stated earlier. The synonym assistance took the form of a simple demonstration and provided a brief break from discussion.

5.3 Conducting the Intervention

Seventeen participants, 13 of whom were from among the survey respondents attended, including 5 of those who participated in the screencasts and interviews. The additional 4 were those who had been told of the event and arrived in hopes of participating and were allowed to do so. Initially the findings of the research were discussed in order to aid triangulation and simply to share the findings. There was a general consensus that the points raised from the findings were valid, though one participant did raise that plagiarism issues should also be incorporated into an offering on information literacy.

The first portion was devoted to expanding the participants' knowledge of sources. Firstly, ingentaconnect and EBSCOhost, were demonstrated. Learners' were shown the advanced search feature on each and invited to attempt a search themselves. Once this was done they were asked how this compared with Google. Without exception they mentioned Google's ease of use was better than either of the demonstrated databases and quicker. Questioned about the ability for a more specific search in the databases than in Google, the general response from the group was that it was a "nice to have" but not essential.

Mention was made of the ability in ingentaconnect to see links to items cited in the journal as well as articles which cite the article or book found. The comment was countered with the point that Google Scholar offers the same with links to "Cited by xxx" xxx being the number of citations, "Related Articles", and a link which will display the versions available. There are also links to a PDF version if available as well as to UKZN e Text which will give links to the journals the university has access too.

A comparison citations shown for an article "*Science and serendipity*" written by Mark Pepys and published in Clinical Medicine, Journal of the Royal College of Physicians in Volume 7, Number 6, 2007, had Google Scholar showing 11 citations for it and ingentaconnect none. A check of one article listed by Google Scholar "*Systemic amyloidosis and the gastrointestinal tract*" that Pepys' article was listed. This showed that the Google Scholar was more accurate than ingentaconnect.

The consensus of the participants was that Google Scholar was sufficient given that it was integrated with the journal holdings of the institution and shared functionality with the databases. Databases may however have some purpose for more refined searches, but even the exercise given in task 5 of the screencasts can be done through a link in Google Scholar and more broadly.

Following this, the group was shown the Directory of Open Access Journals (DOAJ) found at <http://www.doaj.org/>. An explanation of what Open Access is was needed and the response was sceptical. A number questioned the value of an article that was free or from a journal that was free. It seemed that the idea of cost and value go hand in hand, something which in my experience is common in perceptions of open source software. They were shown the selection criteria for inclusion in the list of journals by the maintainers of the site which reads “*For a journal to be included it should exercise quality control on submitted papers through an editor, editorial board and/or a peer-review system*” (Lund University Libraries, 2011). This seemed to convince only a portion of the group, others maintaining that the notion of free articles seemed odd. Nonetheless, most did say they would investigate the site further.

Finally, in this portion of the intervention, the participants were introduced to ETDs and shown *Electronic Theses and Dissertations at VT* (<http://scholar.lib.vt.edu/theses/>) and were invited to explore it briefly. One participant noted that the search engine used to search the site was Google. Little discussion took place here with several people noting that they were pleased to have been told of this. When the issue of free access to the theses and dissertations was tied back to the DOAJ discussion, the verdict was that these differed from journals in that they were not published for profit in contrast to the common model for journal publication.

The use of WordWeb software was demonstrated, the free version of which is available at <http://wordweb.info/free/>. WordWeb is a dictionary and thesaurus which is installed on a computer and can be used to find synonyms. A screen dump of it is shown in Figure 9.

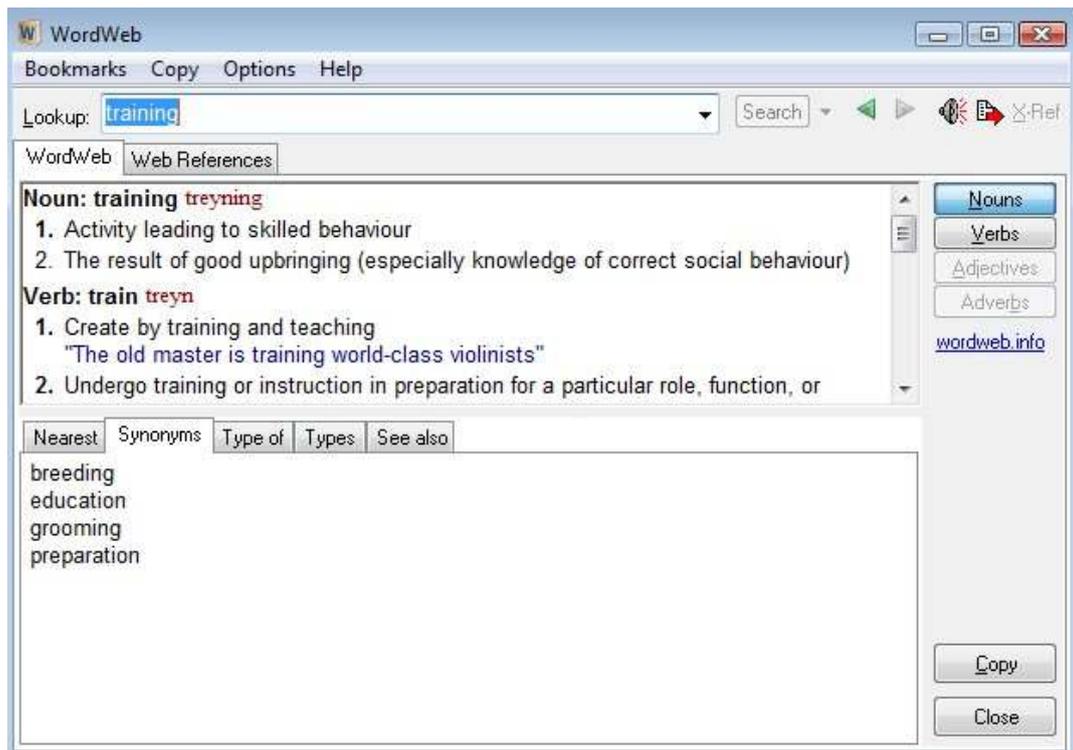


Figure 8: WordWeb: A tool presented as a possible solution for synonym finding

Most attendees agreed that the tool would be useful for finding synonyms.

The final element of the intervention was the discussion regarding evaluating the quality of what is found in the search. As a starting point the group was introduced to what can be described as a “hierarchy of merit” as discussed by Swanson (2005)

Information type	Description	Sample sources
Scholarly	<p>Author: has some degree of authority in the field, typically has an academic post or is a researcher with a PhD or other advanced degree.</p> <p>Audience: other experts in a field</p> <p>Purpose: to advance a field a study by reporting new findings or ideas, increase author's authority and credentials in field</p>	<p>New England Journal of Medicine</p> <p>The Journal of Aesthetic Education</p> <p>The American Journal of Political Science</p> <p>Research findings on a Web site</p> <p>Guns, Germs, and Steel: The Fates of Human Societies by</p>

Information type	Description	Sample sources
		Jared Diamond (1997)
Professional/trade	<p>Author: member of a profession or trade but not necessarily a researcher</p> <p>Audience: members of a particular field or trade</p> <p>Purpose: inform, promote, and generally strengthen the profession, increase creators' authority in the fields.</p>	<p>American Libraries</p> <p>Fire Command</p> <p>Nursing Times</p>
Government	<p>Author: varies (could be government employee, elected official, or expert in a particular field)</p> <p>Audience: varies (could be public, elected official, or government agency)</p> <p>Purpose: generally created to run the government and inform decision making and carries a mark of "officialness," which requires some degree of precision.</p>	<p>Congressional Record</p> <p>Supreme Court Reporter</p> <p>Studies conducted by government agencies</p>
News	<p>Author: non-expert in a field usually with a degree in journalism or training as a writer</p> <p>Audience: general public</p> <p>Purpose: report current events in a timely fashion to sell publication or bring people to Web site</p>	<p>New York Times</p> <p>www.newsweek.com</p> <p>TIME</p> <p>Washington Post</p>

Information type	Description	Sample sources
Entertainment/ popular	<p>Author: non-expert in a field usually with a degree in journalism or training as a writer</p> <p>Audience: general public</p> <p>Purpose: present information in an interesting manner that does not necessarily focus on depth of coverage</p>	<p>Rolling Stone</p> <p>Glamour</p> <p>Entertainment Weekly</p> <p>The Sporting News</p>
Special interest/opinion	<p>Author: typically a non-expert in a field, but could be an expert expressing his or her opinion</p> <p>Audience: general public/people subscribing to a particular point of view</p> <p>Purpose: to advance a particular point of view or express an individual's point of view (the attribution of authority may heavily depend on the beliefs of the reader)</p>	<p>We're Right, They're Wrong by James Carville (1996)</p> <p>National Rifle Association Web site; http://www.nra.org</p>
Unsubstantiated or uncredited information	<p>Author: unable to substantiate identity of the author or author's credentials do not carry authority</p> <p>Audience: general public or unable to determine</p> <p>Purpose: hobby or personal interest</p>	<p>Personal Web sites</p> <p>Handwritten note found on the library table</p>

Table 12: Information Types according to Swanson (2005)

All of those interviewed with one exception had given peer review of a publication as their primary criterion for what constituted quality. Swanson's table created some debate over the notion of appropriateness as being an indication of quality with a learner stating that if it was appropriate to his need then it had sufficient quality.

At this point, in order to introduce the idea that peer review was not always an indicator or merit, the group was introduced to Pasteur's Quadrant shown in Figure 9 below and asked whether an article, which though peer reviewed fitted into the lower left quadrant, had merit.

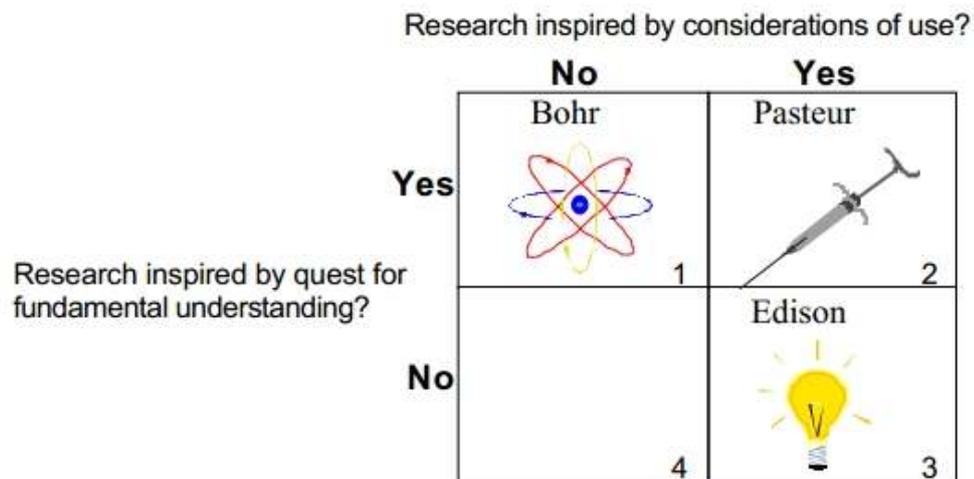


Figure 9: Pasteur's Quadrant taken from Reeves and Hedberg (2003, p. 266) referencing Stokes (1997)

I referred to an article "*A profile of teaching techniques used in the university classroom*" by Lammers and Murphy in 2002 in *Active Education in Higher Learning*. This article was reviewed by myself in 2006 as part of the module "Discourses in Educational Research" and I judged it in the following way. "*In a handout distributed to assist in this assignment it is noted that we should consider our roles as reviewers and our purpose. It is however possible to consider the review role in multiple ways. If this were a peer review prior to article submission, the review would be what I have written above. If, however, I was reviewing this for a journal, and had to make a recommendation regarding publication, I could not recommend acceptance of this article and would not even recommend that the authors attempt to amend it,*" (pp. 4-5) and referring to Pasteur's quadrant concluded with "*It is to this 4th quadrant to which I feel this article belongs*", (Reynolds, 2006, p.6) and asked the group whether this article which had been peer reviewed had merit.

The journal in question is described as "an international, peer reviewed publication" (Sage Journals Online, 2011) and has been cited frequently, yet in my opinion makes wild assumptions about its generalisability and its methods are flawed. It also makes the statement "*Results confirm that lecture continues to be the most prevalent teaching technique in the university classroom, although the frequency with which it occurred was lower than previous estimates,*" (Lammers & Murphy, 2002, p.62). I viewed there assertion in the following light – "*any conclusion as to the lecture continuing to be the most common form of teaching is not*

verifiable without either contemporaneous research in the case of other universities or access to earlier similar research at the authors institution,” (Reynolds, 2006, p.4). These are the reasons I drew the conclusion about it that I did and the lecturer who marked it agreed stating “this is a hard-hitting and insightful comment” referring specifically to my placement of the article as belonging to the bottom left portion of Figure 9.

Responses varied from agreeing with my analysis to a comment that if it was fit for purpose it should come under consideration. To this another participant added that often the purpose of a search was not to interrogate articles but simply to find quotes for what they were writing.

Concluding the intervention, I asked the attendees whether they felt it had been valuable and the response affirmed that it had been. Several noted that they had not been exposed to discussions such as this and wished they had.

5.4 Conclusion

The transient nature of student cohorts as well as the limitations of time made a second cycle of the action research a practical impossibility though it is a desirable notion to be able to do this and constitutes a possibility for future research.

Unfortunately, due to the number of respondents findings contained here are not generalisable even to the small population involved, let alone beyond that. However given this qualification, I conclude that it is likely that the model developed does have validity. The lack of inclination on the part of P7 to attempt tasks 3 and 5 does give credence to the idea that some, by not being motivated aid their own digital and information impoverishment. The repeated mentions of the dearth of adequate training in this area at this University and the number of people who reported receiving training, also support the notion espoused in the model that institutions play a role in alleviating the condition of digital immiseration or continuing it.

Chapter Six: Conclusions and Recommendations

6.1 Introduction

Upon starting this research, my idea of information literacy was on reflection myopic. My knowledge has been considerably enriched. I believed naively that the thesis was about using web-based resources to find literature, but came to realise it was about much more.

6.2 Findings

The majority of learners in the cohort it seems have had to skill themselves with regard to searching for information. Several participants mentioned this and indicated with varying degrees of censure that the university failed to provide adequate training in this area. The number of learners who have received training as reflected in the survey instrument give some weight to their opinions in this regard. Similarly the number of respondents indicating a desire for further training would seem to further add strength to this finding.

The research showed that while learners can find literature easily, there are areas of weakness in information literacy that need remediation. These areas include a simplistic understanding of quality, a lack of knowledge of available resources and the inability to use these resources fully.

6.3 Recommendations

It seems there is a very definite need to increase student awareness of and capabilities in the domain of information literacy. There have been efforts at this before as reflected by (UKZN Librarian, 2009) who comments

PMB offers a number of sessions not limited to students doing a particular course of study, which seem very useful. Some of them used to be credit-bearing, but apart from some law offerings at PMB they aren't anymore, because of the number of contact hours you have to offer to be acceptable to the university. Nevertheless a lot of subject librarians believe this is the way to reach all students. I'm not sure.

However, I believe that the development of information literacy could be subsumed into a larger and in my opinion equally critical area which is that of information technology in research. Phelps et al. (2006) near the beginning of their article *Organisational and technological skills: The overlooked dimension of research training* comment that

For many of these students, advanced technologies that assist the research process have not been part of their undergraduate experience nor, in many cases, have they been part of their subsequent work experience. Expectations that they must adopt technological approaches to data collection and analysis, literature searching, thesis writing and so on can therefore be quite challenging for such students. While researchers inevitably do have to learn such skills through trial and error, their strategies are not necessarily efficient or effective. From our observations, even experienced researchers remain unaware of the potential for these technologies to assist in a wide range of research processes. (Phelps et al., 2006, The Need for Training, para. 1)

And conclude their paper saying

This study supports the need for universities to implement training programs or support structures which aim to develop technically and organisationally strategic research and which assist beginning researchers to overcome the 'don't know what I don't know' issue. Beginning researchers themselves recommended that such concerns might form a focus or component of preparatory research courses. While many universities are offering training and support in most aspects of research training, specific courses in how to manage and organise research are still the exception. (Phelps et al., 2006, Conclusions: Developing research students as organisationally and technically strategic, para. 3)

I have on occasion had opportunities to give workshops on the use of IT in research and latterly as part of this research run the *Conversation about Information* workshops and see it as quite possible that the two could be combined into a credit bearing course. The module as I see it should involve several elements:

- Library skills
- Introduction to the databases and searching
- Source evaluation
- Referencing and citing and the use of software for this
- Intellectual Property and copyright
- Plagiarism and anti-plagiarism software
- Using qualitative software
- Using quantitative software
- Using mind mapping software and
- Using note organising software.

Backing up the value of such a course is the belief by some (Information Literacy, 2010; University of Alberta Libraries, 2011) that the lack of information literacy and research skills is a leading cause of plagiarism either voluntary or involuntary.

I believe that such a module would have undoubted benefits to those engaging in postgraduate research in the modern, connected, digital era.

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Appendices

Appendix A: Ethical approval application

FOR YOUR INFORMATION
KINDLY RETURN ORIGINAL
COPY TO STUDENT



RESEARCH OFFICE (GOWAN MBEKI CENTRE)
WESTVILLE CAMPUS
TELEPHONE NO: 031-2603457
EMAIL : info@ukzn.ac.za

4 SEPTEMBER 2008

MR. HURTYHOLDS (200510296)
DEVELOPMENT STUDIES

Dear Mr. Regrolds:

ETHICAL CLEARANCE APPROVAL NUMBER: HSS0462/08M

Web browser for the ethical clearance has been approved for the following project:

"The use of browser based resources for literature searches in the post graduate cohort of the Faculty of Humanities, Development and Social Sciences (HDSS) of the Howard College Campus of the University of Kwazulu-Natal"

PLEASE NOTE: Research data should be securely stored in the electronic format for a period of 3 years.

Yours faithfully,


MS. PHUMELELE XIMBA

cc: Supervisor (Gifty Mnyoni)
cc: Mr. L. Mkhulu

Faculty of Humanities ■ Howard College ■ Howard College ■ Howard College ■ Howard College ■ Howard College

Appendix B: Participants' consent forms

1 Consent Form for Questionnaire

This questionnaire is part of research intended to study how postgraduate students in Humanities at the Howard College campus of the University of KwaZulu-Natal use the web for literature searches. It is being done as part of the research for my Masters thesis titled: *The use of browser based resources for literature searches in the post graduate cohort of the Faculty of Humanities, Development and Social Sciences (HDSS) at the Howard College Campus of the University of KwaZulu-Natal.*

As a member of this group you have been asked to participate in this questionnaire. Participation is voluntary and the confidentiality of respondents is ensured. The time for the questionnaire should be about 20 minutes. Decisions not to participate will in no way affect your academic efforts. At any time up until submission of the thesis you may choose to withdraw from the research process.

The questionnaire is the first of a series of instruments covering this research. The full list is:

- 1) Questionnaire
- 2) Interviews
- 3) Screen and voice recordings
- 4) Workshop
- 5) Focus group

By completing this questionnaire you do not commit yourself to participation in any other part of the research.

The data will be stored in encrypted files and preserved for the legally required period after which it will be destroyed by breaking any CDs containing copies and burning or shredding any paper versions which may exist.

The questionnaire aims to develop an overview around information literacy skills amongst the post graduate cohort in HDSS at Howard College. It forms part of a thesis which it is hoped will benefit learners by helping guide offerings that may be given in this area by the faculty.

Ethics clearance has been granted by the Research Committee.

Contact Details

Person	Role	E-mail	Telephone	Qualifications
Hilary Reynolds	Researcher	reynoldsh1@ukzn.ac.za	2602038	
K. Murrell	Supervisor	murrell@ukzn.ac.za	2602478	B.A. (HDE) M.Sc.

Agreement to participate

I understand the information above and agree to have my responses form part of the research. I also understand that all information I give is confidential and will not prejudice me in any way. I further realise that should I at any point wish to have my responses withdrawn, I may do so.

Signed by on .../.../2010.

Signature:

2 Consent Form for Interviews

This interview is part of research intended to study how postgraduate students in Humanities at the Howard College campus of the University of KwaZulu-Natal use the web for literature searches. It is being done as part of the research for my Masters thesis titled: *The use of browser based resources for literature searches in the post graduate cohort of the Faculty of Humanities, Development and Social Sciences (HDSS) at the Howard College Campus of the University of KwaZulu-Natal.*

You have been asked to participate in this interview because you indicated your willingness to do so in a questionnaire completed earlier and you fulfilled criteria required by the research design which was to select people who fitted the following criteria:

- South African students who are English first language speakers
- South African students whose first language is one other than English
- International students who are English first language speakers
- International students whose first language is not English

From the respondents who filled these criteria people were randomly selected to be asked to participate in the interviews. This was done iteratively until 3 people from each group had agreed to be interviewed.

Participation is voluntary and the confidentiality of respondents is ensured. The time for the interview should be about 30 to 40 minutes. Decisions not to participate will in no way affect your academic efforts. At any time up until submission of the thesis you may choose to withdraw from the research process. Your anonymity is ensured and your name will not be used in any part of the thesis.

The interview is the second of a series of instruments covering this research. The full list is:

- 1) Questionnaire
- 2) Interviews
- 3) Screen and voice recordings
- 4) Workshop
- 5) Focus group

By participating in this interview you do agree to participate in the remaining parts of the research.

The data will be stored in encrypted files and preserved for the legally required period after which it will be destroyed by breaking any CDs containing copies and burning or shredding any paper versions which may exist.

The interview aims to interrogate specific feelings and thoughts concerning information literacy skills amongst the post graduate cohort in HDSS at Howard College. It forms part of a thesis which it is hoped will benefit learners by helping guide offerings that may be given in this area by the faculty.

Ethics clearance has been granted by the Research Committee.

Contact Details

Person	Role	E-mail	Telephone	Qualifications
Hilary Reynolds	Researcher	reynoldsh1@ukzn.ac.za	2602038	
K. Murrell	Supervisor	murrell@ukzn.ac.za	2602478	B.A. (HDE) M.Sc.

Agreement to participate

I understand the information above and agree to have my responses form part of the research. I also understand that all information I give is confidential and will not prejudice me in any way. I further realise that should I at any point wish to have my responses withdrawn, I may do so.

Signed by on .../.../2010.

Signature:

3 Consent Form for Recordings

This recording of search practice is part of research intended to study how postgraduate students in Humanities at the Howard College campus of the University of KwaZulu-Natal use the web for literature searches. It is being done as part of the research for my Masters thesis titled: *The use of browser based resources for literature searches in the post graduate cohort of the Faculty of Humanities, Development and Social Sciences (HDSS) at the Howard College Campus of the University of KwaZulu-Natal.*

You have been asked to participate in this screen and voice recording session because you indicated your willingness to do so in a questionnaire completed earlier and you fulfilled criteria required by the research design which was to select people who fitted the following criteria:

- South African students who are English first language speakers
- South African students whose first language is one other than English
- International students who are English first language speakers
- International students whose first language is not English

From the respondents who filled these criteria people were randomly selected to be asked to participate in the interviews. This was done iteratively until 3 people from each group had agreed to be interviewed.

Participation is voluntary and the confidentiality of respondents is ensured. The time for the session should be about 30 minutes. During this time you will be asked to find certain information using a web browser. Your typing and mouse movements will be recorded and using a headset you will be able to voice your thoughts and feelings. Decisions not to participate will in no way affect your academic efforts. Your anonymity is ensured and your name will not be used in any part of the thesis in which you will be identified by a code. At any time up until submission of the thesis you may choose withdraw from the research process.

The interview is the third of a series of instruments covering this research. The full list is:

- 1) Questionnaire
- 2) Interviews
- 3) Screen and voice recordings
- 4) Workshop
- 5) Focus group

The data will be stored in encrypted files and preserved for the legally required period after which it will be destroyed by breaking any CDs containing copies. Written artefacts if any will be stored off campus and burned at the same time as the CDs are broken.

The recording aims to study the practice of web searching amongst the post graduate cohort in HDSS at Howard College as well as providing a record of their feelings concerning the act of searching for information. It forms part of a thesis which it is hoped will benefit learners by helping guide offerings that may be given in this area by the faculty.

Ethics clearance has been granted by the Research Committee.

Contact Details

Person	Role	E-mail	Telephone	Qualifications
Hilary Reynolds	Researcher	reynoldsh1@ukzn.ac.za	2602038	
K. Murrell	Supervisor	murrell@ukzn.ac.za	2602478	B.A. (HDE) M.Sc.

Agreement to participate

I understand the information above and agree to have my responses form part of the research. I also understand that all information I give is confidential and will not prejudice me in any way. I further realise that should I at any point wish to have my responses withdrawn, I may do so.

Signed by on .../.../2010.

Signature:

4 Consent Form for Workshops

This interview is part of research intended to study how postgraduate students in Humanities at the Howard College campus of the University of KwaZulu-Natal use the web for literature searches. It is being done as part of the research for my Masters thesis titled: *The use of browser based resources for literature searches in the post graduate cohort of the Faculty of Humanities, Development and Social Sciences (HDSS) at the Howard College Campus of the University of KwaZulu-Natal.*

You are participating in this workshop because you indicated a desire to do so in a questionnaire completed earlier.

Participation is voluntary and the confidentiality of participants is ensured. Decisions not to participate will in no way affect your academic efforts. While the workshops are not recorded, comments you make may be noted in the thesis. At the conclusion of the workshop you will be asked to comment in writing on the workshop itself. All these comments are anonymous with the respondents not being required to give names. At any time up until submission of the thesis you may choose withdraw from the research process. Your anonymity is ensured and your name will not be used in any part of the thesis.

The workshop is the fourth of a series of instruments covering this research. The full list is:

- 1) Questionnaire
- 2) Interviews
- 3) Screen and voice recordings
- 4) Workshop
- 5) Focus group

The data will be stored in encrypted files and preserved for the legally required period after which it will be destroyed by breaking any CDs containing copies and burning or shredding any paper versions which may exist.

The workshop is aimed at altering perceptions and practices around using browsers for literature searches. It is hoped that this will benefit the participants by improving the quality of their literature searches. It forms part of a thesis which it is hoped will benefit learners by helping guide offerings that may be given in this area by the faculty.

Ethics clearance has been granted by the Research Committee.

Contact Details

Person	Role	E-mail	Telephone	Qualifications
Hilary Reynolds	Researcher	reynoldsh1@ukzn.ac.za	2602038	
K. Murrell	Supervisor	murrell@ukzn.ac.za	2602478	B.A. (HDE) M.Sc.

Agreement to participate

I understand the information above and agree to have my responses form part of the research. I also understand that all information I give is confidential and will not prejudice me in any way. I further realise that should I at any point wish to have my responses withdrawn, I may do so.

Signed by on .../.../2010

Signature:

5 Consent Form for Focus Group

This interview is part of research intended to study how postgraduate students in Humanities at the Howard College campus of the University of KwaZulu-Natal use the web for literature searches. It is being done as part of the research for my Masters thesis titled: *The use of browser based resources for literature searches in the post graduate cohort of the Faculty of Humanities, Development and Social Sciences (HDSS) at the Howard College Campus of the University of KwaZulu-Natal.*

You have been asked to participate in this focus group because you indicated your willingness to do so in a questionnaire completed earlier and you fulfilled criteria required by the research design which was to select people who fitted the following criteria:

- South African students who are English first language speakers
- South African students whose first language is one other than English
- International students who are English first language speakers
- International students whose first language is not English

From the respondents who filled these criteria people were randomly selected to be asked to participate in the interviews. This was done iteratively until 3 people from each group had agreed to be interviewed.

Participation is voluntary and the confidentiality of respondents is ensured. The time for the focus group should be about sixty minutes. Decisions not to participate will in no way affect your academic efforts. At any time up until submission of the thesis you may choose to withdraw from the research process. Your anonymity is ensured and your name will not be used in any part of the thesis in which you will be identified by a code.

The focus group is the last of a series of instruments covering this research. The full list is:

- 1) Questionnaire
- 2) Interviews
- 3) Screen and voice recordings
- 4) Workshop
- 5) Focus group

The data will be stored in encrypted files and preserved for the legally required period after which it will be destroyed by breaking any CDs containing copies and burning or shredding any paper versions which may exist.

The focus group aims to interrogate the effects of the workshop on the literature search practices amongst participants. It forms part of a thesis which it is hoped will benefit learners by helping guide offerings that may be given in this area by the faculty.

Ethics clearance has been granted by the Research Committee.

Contact Details

Person	Role	E-mail	Telephone	Qualifications
Hilary Reynolds	Researcher	reynoldsh1@ukzn.ac.za	2602038	
K. Murrell	Supervisor	murrell@ukzn.ac.za	2602478	B.A. (HDE) M.Sc.

Agreement to participate

I understand the information above and agree to have my responses form part of the research. I also understand that all information I give is confidential and will not prejudice me in any way. I further realise that should I at any point wish to have my responses withdrawn, I may do so.

Signed by on .../.../2010.

Signature:

Appendix C: Questionnaire

Questionnaire

Consent form:

This questionnaire is part of research intended to study how postgraduate students in Humanities at the Howard College campus of the University of KwaZulu-Natal use the web for literature searches. It is being done as part of the research for my Masters thesis titled: *The use of browser based resources for literature searches in the post graduate cohort of the Faculty of Humanities, Development and Social Sciences (HDSS) at the Howard College Campus of the University of KwaZulu-Natal.*

As a member of this group you have been asked to participate in this questionnaire. Participation is voluntary and the confidentiality of respondents is ensured. The time for the questionnaire should be about 20 minutes. Decisions not to participate will in no way affect your academic efforts. At any time up until submission of the thesis you may choose withdraw from the research process.

The questionnaire is the first of a series of instruments covering this research. The full list is:

- 1) Questionnaire
- 2) Interviews
- 3) Screen and voice recordings
- 4) Workshop
- 5) Focus group

By participating in this questionnaire you do not commit yourself to participation in any other part of the research.

The data will be stored in an encrypted files and preserved for the legally required period after which it will be destroyed by breaking any CDs containing copies and burning or shredding any paper versions which may exist.

The questionnaire aims to develop an overview around information literacy skills amongst the post graduate cohort in HDSS at Howard College. It forms part of a thesis which it is hoped will benefit learners by helping guide offerings that may be given in this area by the faculty.

Ethics clearance has been granted by the Research Committee.

Contact Details

Person	Role	E-mail	Telephone	Qualifications
Hilary Reynolds	Researcher	reynoldsh1@ukzn.ac.za	2602038	
K. Murrell	Supervisor	murrell@ukzn.ac.za	2602478	B.A. (HDE) M.Sc.

Agreement to participate

I understand the information above and agree to have my responses form part of the research. I also understand that all information I give is confidential and will not prejudice me in any way. I further realise that should I at any point wish to have my responses withdrawn, I may do so.

Signed by on .../.../2010.

Signature:

Section A: Demographic information:

1	Please tick the school you belong to	Anthropology, Gender And Historical Studies	<input type="checkbox"/>
		Architecture, Planning And Housing	<input type="checkbox"/>
		Development Studies	<input type="checkbox"/>
		IsiZulu Studies	<input type="checkbox"/>
		Language, Literature And Linguistics	<input type="checkbox"/>
		Literary Studies, Media And Creative Arts	<input type="checkbox"/>
		Music	<input type="checkbox"/>
		Philosophy And Ethics	<input type="checkbox"/>
		Politics	<input type="checkbox"/>
		Psychology	<input type="checkbox"/>
		Religion And Theology	<input type="checkbox"/>
		Social Work & Community Development	<input type="checkbox"/>
		Sociology And Social Studies	<input type="checkbox"/>
		Other (Specify):	<input type="checkbox"/>
<hr/>			
2	What is your level of study? (Please tick the correct selection)	Post-graduate Certificate	<input type="checkbox"/>
		Honours	<input type="checkbox"/>
		Masters	<input type="checkbox"/>
		Doctorate	<input type="checkbox"/>
3	Where did you complete your undergraduate studies?	University of KwaZulu-Natal	<input type="checkbox"/>
		University of Durban Westville	<input type="checkbox"/>

		University of Natal	<input type="checkbox"/>
		Other (Please state):	<input type="checkbox"/>
4	As an undergraduate did you receive any formal instruction on searching the web for literature?	Yes	<input type="checkbox"/>
		No	<input type="checkbox"/>
5	If the answer to question 4 is yes, please give brief details on the nature of the instruction		

6	Gender	Female	<input type="checkbox"/>
		Male	<input type="checkbox"/>
7	Are you a South African?	Yes	<input type="checkbox"/>
		No	<input type="checkbox"/>
	If not South African please state country of origin (where you did most of your schooling):		

8	Is English your first language?	Yes	<input type="checkbox"/>
		No	<input type="checkbox"/>
	If not please specify		

9	Do you use the internet for any activities not related to your studies?	Yes	<input type="checkbox"/>
		No	<input type="checkbox"/>

Section B: Browsing

10 Do you know what is meant by Yes
the term “web browser”?

No

—

11	How would you rate your internet searching skills?	To be amongst the best	<input type="checkbox"/>
		Very good	<input type="checkbox"/>
		Average	<input type="checkbox"/>
		Below average	<input type="checkbox"/>
		Exceptionally poor	<input type="checkbox"/>

12	Do you use the internet to search for academic literature?	Yes	<input type="checkbox"/>
		No	<input type="checkbox"/>

13	How often to you use Internet Explorer?	Exclusively	<input type="checkbox"/>
		Very frequently	<input type="checkbox"/>
		Often	<input type="checkbox"/>
		Seldom	<input type="checkbox"/>
		Never	<input type="checkbox"/>

14	How often to you use Firefox?	Exclusively	<input type="checkbox"/>
		Very frequently	<input type="checkbox"/>
		Often	<input type="checkbox"/>
		Seldom	<input type="checkbox"/>
		Never	<input type="checkbox"/>

15	How often to you use Opera?	Exclusively	<input type="checkbox"/>
		Very frequently	<input type="checkbox"/>
		Often	<input type="checkbox"/>
		Seldom	<input type="checkbox"/>
		Never	<input type="checkbox"/>

16	Do you use any other browser besides those listed above?	Yes	<input type="checkbox"/>
		No	<input type="checkbox"/>

If yes please name the browser/s.

Section C: Training

17	Have you received any formal instruction on how to search for literature using the web?	Yes	<input type="checkbox"/>
		No	<input type="checkbox"/>

18	If your answer to 15 was yes, please indicate how much time was taken in the instruction your received:	1-30 minutes	<input type="checkbox"/>
		31-60 minutes	<input type="checkbox"/>
		61 minutes – 4 hours	<input type="checkbox"/>
		4 hours-8 hours	<input type="checkbox"/>
		1 day to 1 week	<input type="checkbox"/>
		More than 1 week	<input type="checkbox"/>

19 If your answer to 17 was yes, was the time spent on instruction adequate? Yes No

20 In your view was this training helpful? Please comment below: Yes No

Section D: Current searching practices

21 Below, please list all the web resources (such as search engines and databases) that you commonly use to find literature. (Use either the name or address):

22 How often do you use the advanced search facilities on these resources?

Always

Very often

Sometimes

Rarely

Never

23 Do you ever use the help link on the search tools?

Yes

No

24 Given the question “What ways are there of developing the potential of disabled children?”, list the search terms you would used to find literature to research this question?

25 Name or give the URL for your preferred resource for searching for literature? (Please answer this from memory)

26 Name or give the URL for your second choice resource for searching for literature? (Please answer this from memory)

27 List three (3) electronically available journals in your discipline. (Please answer this from memory without referring to the Web)

1.

2.

3.

28 If you need help searching for literature, who do you turn to for help? (Tick all that apply)

Lecturer
Supervisor

<input type="checkbox"/>
<input type="checkbox"/>

Fellow student	<input type="checkbox"/>
Friend other than a fellow student	<input type="checkbox"/>
Subject librarian	<input type="checkbox"/>
LAN Consultant	<input type="checkbox"/>
Spouse/Partner	<input type="checkbox"/>
Parent	<input type="checkbox"/>
Brother or sister	<input type="checkbox"/>
Other (Specify):	<input type="checkbox"/>

29 How often do you feel satisfied with the results of your search:	80-100% of the time	<input type="checkbox"/>
	60-79% of the time	<input type="checkbox"/>
	40-59% of the time	<input type="checkbox"/>
	20-39% of the time	<input type="checkbox"/>
	0-19% of the time	<input type="checkbox"/>

30 Do you find searching for information enjoyable:	All the time	<input type="checkbox"/>
	Most of the time	<input type="checkbox"/>
	About half the time	<input type="checkbox"/>
	Rarely	<input type="checkbox"/>
	Never	<input type="checkbox"/>

31 Do you feel that you would benefit from further training in searching for literature using the web?

Yes
No

32 Rate your competence in searching compared to that of your peers

Exceptionally good
Better than many
About the same
Poorer than many
Far worse

33 Do you think you become frustrated when searching for literature on the web

Very often
Often
Sometimes
Rarely
Never

34 How often do you feel overwhelmed by the number of results that are returned by a search

Always
Often
Sometimes
Rarely

		Never	<input type="checkbox"/>
35	Do you keep any notes related to your searching?	Yes	<input type="checkbox"/>
		No	<input type="checkbox"/>
36	Do you use Electronic Theses and Dissertation repositories?	Yes	<input type="checkbox"/>
		No	<input type="checkbox"/>
		Have not heard of them	<input type="checkbox"/>
37	Do you use Open Access journals?	Yes	<input type="checkbox"/>
		No	<input type="checkbox"/>
		Have not heard of them	<input type="checkbox"/>
38	If there was a workshop on searching the web would you be interested in attending?	Yes	<input type="checkbox"/>
		No	<input type="checkbox"/>
39	How long would you be able to spend at the workshop?		<hr/>
40	Would you be prepared to engage in additional activities beyond the workshop, such as an interview in	Yes	<input type="checkbox"/>
		No	<input type="checkbox"/>

connection with this study? The envisaged time excluding the workshop would be of the order of 2 hours over a four month period.

- 41 If you answered yes to either question 38 or 40, please write your name and email address here for contact purposes. It will not be used to identify you in the thesis and will not be entered into any datasets

Name:

e-mail:
