

**An evaluation of the information literacy education of MBA students at the University
of Stellenbosch Business School**

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



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Declaration

I declare that *An evaluation of the information literacy education of MBA students at the Stellenbosch University Business School* is my work, that it has not been submitted before for any degree or examination in any other university, and that all the sources I have used or quoted have been indicated and acknowledged as complete references.

Judy Anne Williams

November 2012

Signed:.....



Abstract

An evaluation of the information literacy education of MBA students at the Stellenbosch University Business School

This study investigates the effectiveness of the information literacy education that Master of Business Administration (MBA) students receive at the University of Stellenbosch Business School (USB). The literature reveals that there is a growing trend worldwide to extend information literacy education to include graduate students. The study uses the Association of College and Research Libraries (ACRL) Information Literacy Standards for Higher Education Competencies as the theoretical framework together with Kuhlthau's *Information Search Process*. Both process and formative evaluation was used in the study. A mixed method approach was applied to gather data for the study using a pre- and post-information literacy questionnaire, interviews with the information literacy facilitator and the research methodology lecturer and a rubric assessment of students' group assignment. The information literacy intervention focuses mainly on ACRL Standard 1, with more emphasis on ACRL Standard 2. ACRL Standards 3, 4 and 5 were briefly mentioned as it was difficult to cover all the ACRL Standards adequately within a once-off information literacy session. The results of the study show that the information literacy intervention was successful in introducing students to some of the electronic resources which is one of the major objectives of the intervention. Students' scores in the pre- and post-information literacy questionnaire and the group assignment were high. This could be an indication that the information literacy intervention was a success. The interviews with the information literacy facilitator and the research methodology lecturer reveal that little collaboration between the library and business academics is taking place. This lack of collaboration affects the quality of the information literacy education in terms of business academics input in the information literacy intervention and in terms of reinforcing information literacy outcomes in students' assignments. One of the recommendations is that collaborative relationships should be developed between the library and business academics in order to develop an information literacy plan that will fully integrate information literacy within Masters' courses.

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**An evaluation of the information literacy education of MBA students at the
Stellenbosch University Business School**

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Keywords

Information literacy

Information literacy assessment

Information literacy education

Information literacy intervention

Information literacy standards

Higher education

Post-graduate students

Business education

Master of Business Administration

Evaluation research



List of Acronyms

AACSB	Association to Advance Collegiate Schools of Business
ACRL	Association of College and Research Libraries
CALICO	Cape Library Co-operative
CAUL	Council of Australian University Librarians
CHELSEA	Committee of Higher Education Librarians of South Africa
ILT	Information Literacy Training
ISP	Information Search Process
LIASA	Library and Information Association of South Africa
MBA	Master in Business Administration
SAQA	South African Qualifications Authority
SCONUL	Society of College National and University Libraries
SU	Stellenbosch University
UK	United Kingdom
USA	United States of America
USB	University of Stellenbosch Business School
USBI	University of Stellenbosch Bellville Park Campus Information Centre

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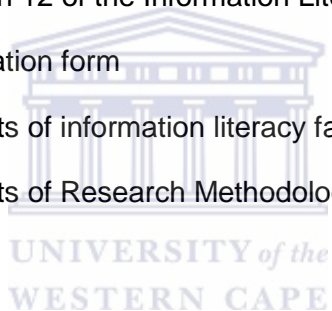
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CHAPTER 1: Background and Motivation

1.1 Introduction

In the highly competitive world of business where information can make or break a project or business, information literacy is of utmost importance. The university, one of the major stepping stones for many students before entering the business world, should produce information literate graduates. It has fallen upon the academic librarian to promote and teach information literacy. To integrate information literacy into the curriculum is one of the academic librarian's biggest challenges. This study examines the information literacy education that Master of Business Administration (MBA) students receive at the University of Stellenbosch Business School (USB). This chapter deals with the background and motivation for this study. It provides a review of some of the key concepts such as information literacy, information literacy education and business education, the Association of College and Research Libraries (ACRL) Information Literacy Competency Standards for Higher Education, Kuhlthau's information search process and learning theories.

1.2 What is information literacy?

Information literacy is defined as the ability to "recognise when information is needed, the ability to locate, evaluate, and use effectively the needed information" (Association of College and Research Libraries, 2000: 2). Information literate people are lifelong learners who know how knowledge is organised, know how to find and use information for any task (Association of College and Research Libraries, 2000: 4). This definition of information literacy by the ACRL is one of the most widely used definitions.

In the fast changing environment in which we live, where new technologies, new innovations and too much information change the way in which we live and work, information literacy is an essential skill. Educational institutions should recognise the value of information literacy. They should produce information literate students who will be able to cope with the information overload, new technologies and innovations in any situation, thus producing life-long learning skills.

1.3 Information literacy and business education

According to Detlor et al. (2011: 573),

the business education literature in particular supports the need to train students in information skills because there are strategic advantages over competitors, and significantly enhanced levels of productivity and innovation within organizations when workers are information literate

How to access and evaluate information quickly and use it to the best advantage could contribute to the success or failure of a business or project. Information literacy education should be an important part of business education because it will equip students to:

- find the right information efficiently;
- effectively use the information to make successful business decisions in the future;
- perform better in terms of their academic output; and
- graduate within the required timeframe.

A fully integrated information literacy course based on information literacy standards increases the possibility of producing critical thinking and information skilled students.

1.4 Conceptual framework

1.4.1 Information literacy

The first person to use the term information literacy was Zurkowski in his 1974 report to the National Commission of Libraries and Information Science titled, *the information service environment, relationships and priorities* (Bruce, 1997: 5). Zurkowski used information literacy to describe an individual's capacity to use information tools and primary sources to address problems.

One of the prominent researchers in information literacy is Kuhlthau. Her theory-based Information Search Process (ISP) developed from 20 years of research in school, university and work environments. The ISP model describes feelings, thoughts and actions of students during the process of doing research in which they are required to construct their own understanding (Kuhlthau, Maniotes & Caspari, 2007: 19). Kuhlthau's model presents a seven stage process involving: initiation, selection, exploration, formulation, collection, presentation and assessment. See Figure 1 on the next page.

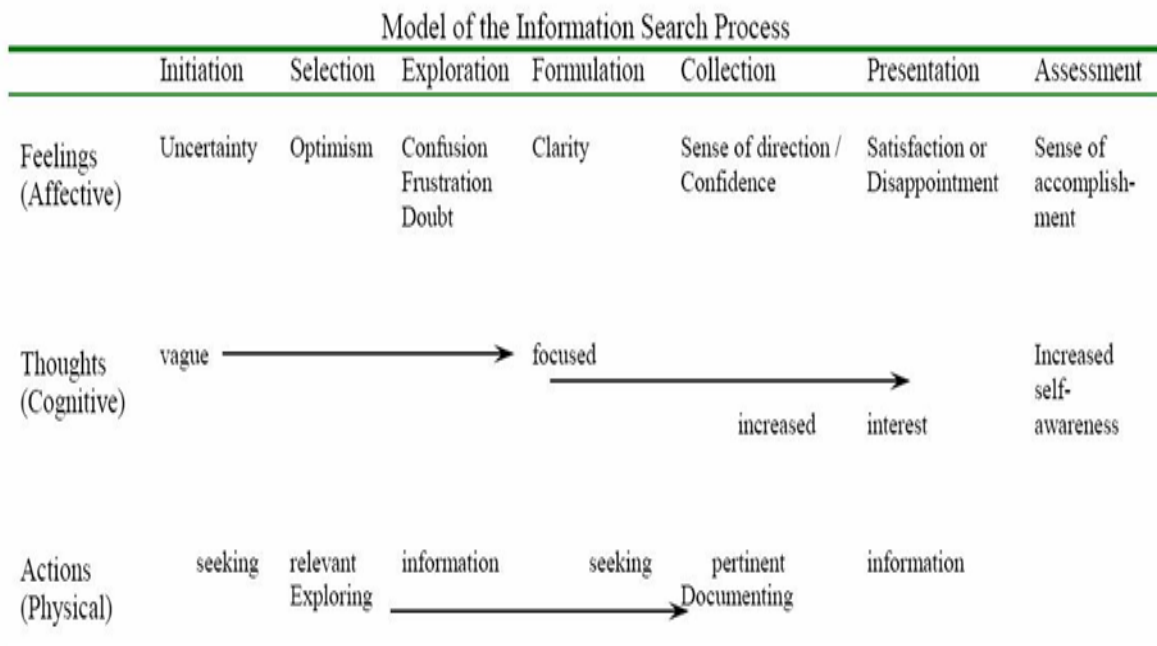


Figure 1 Kulthau's information Search Process model (Kuhlthau, 2004:82)

Important in Kuhlthau's study is her Zone of Intervention which she borrowed from Vygotsky's concept of a zone of proximal development.

The zone of proximal development is the distance between the actual developmental level as determined by independent problem solving and the level of potential development though problem solving under adult guidance or in collaboration with more capable peers (Kuhlthau, Maniotes & Caspari, 2007: 23).

Kuhlthau defined her Zone of Intervention during the learning process as advice or assistance to students who cannot do it alone or can only do with great difficulty (Kuhlthau, 2004: 129).

In the construction of her ISP, Kuhlthau made use of the constructivist theories of Dewey (1924), Kelly (1963) and Bruner (1986), Vygotsky's (1978) concept of a zone of proximal development, and followed Dervin's (1983) recommendation of using the student's view as the basis for her model (Kuhlthau, 2004: 15). Kuhlthau's ISP model is informed by empirical research. Her research has contributed greatly to the knowledge of information literacy.

1.4.2 Information literacy education

According to Bruce (2004: 1),

educators all over the world have been developing strategies and policies for designing learning opportunities that will enable learners to take advantage of the information communication infrastructure available to them.

Within the library and information sector the need for information literacy was recognised and developed to assist in taking effective advantage of the information communication infrastructure. This is clear in the different models and standards for information literacy that are available. The significance of information literacy education is in the potential to encourage deep learning and the potential to develop independent, self-directed lifelong learners (Bruce, 2004: 4).

For effective information literacy education there needs to be:

- A shift for the educators from pre-packaging information for students such as text books and course readers to facilitating active learning using real world information resources (Bruce, 2004: 10).
- A shift for the information literacy librarians from bibliographic instruction and information literacy training to information literacy education to broaden information literacy programs from generic to embedded (Lupton, 2004: 17). This will require librarians to have greater understanding of subject content and pedagogy which requires further professional development, collaboration with academics and time away from the library (Lupton, 2004: 17).
- A shift for learners towards information literacy education. Effective information literacy education requires a process approach in which learners see information seeking and handling as a problem-solving and constructive learning process (Hart, 2006: 173).

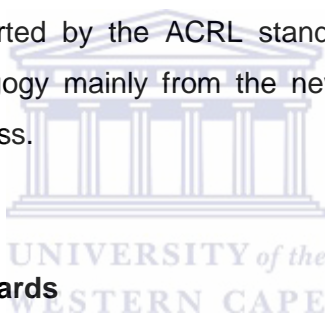
Information literacy education is essential for all levels of education. Most of the research in higher education concentrates on first year information literacy instruction. Researchers such as Johnston (1999), Cooney and Hiris (2003), Grant and Berg (2003) and Catalano (2010) highlighted the need for information literacy education for graduate students. Information literacy has evolved into far more than just a library issue. It is an education

issue where all the role players need to work together to produce information literate graduates and post graduates.

1.4.2.1 Information literacy and learning theories

Information literacy is grounded in learning theory. The learning theory most frequently used in terms of information literacy education are the constructivism and behaviourism theories. Behaviourism encourages behaviour by rewarding or reinforcing desired behaviour (Bobish, 2011: 55). The ACRL standards provide measurable behaviour outcomes that can be reinforced or rewarded through credit bearing programmes.

The constructivist theory as used by Kuhlthau is based on the idea that students learn best in environments where they are challenged to solve problems, promote active learning, and critical thinking is part of the process (Mitchell, 2010). Constructivist pedagogy includes inquiry based learning, problem based learning and resource based learning. These educational methods are supported by the ACRL standards. There is a greater move towards the constructivist pedagogy mainly from the new generation who demand more participation in the learning process.



1.4.3 Information literacy standards

According to Lupton (2004: 23), information literacy, as represented in standards, is seen as a set of understandings, skills, attributes, attitudes and knowledge, essential for independent learning and lifelong learning.

Information literacy standards can be used to:

- develop information literacy curricula to guide instruction, course work, assessment;
- assess the information literacy instruction and improve the quality of instruction;
- assess the information literacy of students; and
- show the university authorities the importance and outcomes of information literacy.

There are several standards and models of information literacy available for higher education. According to Andretta (2005: 41), all of them contain the same method of processing the information, beginning with the identification of a need for information,

followed by the methods of accessing and evaluating the information retrieved to answer the enquiry that initiated this process. The Society of College National and University Libraries (SCONUL) of the United Kingdom (UK) published their 'seven pillars' of information literacy in 1999 where the learner moves from novice through to expert in information literacy (De Jager & Nassimbeni, 2003: 108). In 2000, the Association of College and Research Libraries (ACRL) from the United States of America (USA) published their five information literacy standards. The Council of Australian University Librarians (CAUL) published their seven standards in 2001 based on the ACRL's information literacy standards (De Jager & Nassimbeni, 2003: 108). CAUL added the recognition that lifelong learning and participative citizenship require information literacy. These standards represent a particular way of understanding and representing information literacy, according to Lupton, (2004: 33). Several authors (Emmett & Emde, 2007; Chipeta, 2010; Lloyd, 2010) agree that the ACRL standards are widely recognised as the definitive standards to use to evaluate information literacy in higher education. The ACRL information literacy standards reflect Kuhlthau's ISP model in which information seeking and use consist of interconnected stages. The ACRL standards start with a description of the information literacy standards which are broken down into performance indicators and measurable learning outcomes (Andretta, 2005: 43). The ACRL framework is used to evaluate the information literacy education that MBA students receive at USB. The five ACRL standards (See Appendix 1 for the detailed ACRL Information Literacy Competency Standards for Higher Education) stipulate that:

1. The information literate student determines the nature and extent of the information needed;
2. The information literate student accesses 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;
4. The information literate student individually or as a member of a group, uses information effectively to accomplish a specific purpose; and
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 (Association of College and Research Libraries, 2000).

1.5 Problem statement

In 2001 the University of Stellenbosch Senate approved a graduate profile which alludes to the characteristics of an information literate person. Information literate people, according to the profile, are those equipped for professional life, lifelong learning, critical citizenship and have higher level skills, such as synthesizing and critically evaluating information.

In 2003, the Academic Planning Committee, the Senate and Council of University of Stellenbosch approved the *Guidelines for the Integration of Information Literacy in all Undergraduate Learning and Teaching Programmes* (Strategic Directions 2010-2015). The University of Stellenbosch as a whole and the University of Stellenbosch Library and Information Service in particular is working hard to integrate information literacy into all courses. Currently, most information literacy is offered either as part of the general orientation of first year students or as individual requests for assistance with assignments.

The University of Stellenbosch Business School (USB) has information literacy integrated into the Research Methodology course for MBA students. It is the only USB course to offer an integrated approach and it has never been evaluated. The research problem of this study is to investigate the effectiveness of the information literacy education which MBA students receive at USB. The intention of the study is to reflect on the strengths and weaknesses of the information literacy education programme and to assist with the improvement of the programme. Using the ACRL Information Literacy Competency Standards as its framework, and guided by the literature, the researcher developed research questions which are dealt with in Chapter three, the research methodology chapter.

1.6 Ethics statement

The ethical guidelines of the University of the Western Cape were adhered to at all times. The information literacy facilitator permitted the researcher to observe her intervention, to administer the pre- and post-information literacy questionnaire during her session and to assess the information literacy group assignment. The information literacy facilitator and the research methodology lecturer gave permission to interview them. The researcher obtained informed consent from her research participants, the students, based on adequate information of the project. See Appendix 2 for the student consent form and Appendix 3 for the interview consent form. Respondents were promised anonymity. Participants

understood that participation was voluntary and that they could withdraw from the study at any time.

1.7 Outline of chapters

The dissertation is structured as follows:

Chapter one introduces the study and explains the rationale behind the study. It describes the theoretical framework used and the key concepts. The problem of the study is stated as well as the ethical conduct.

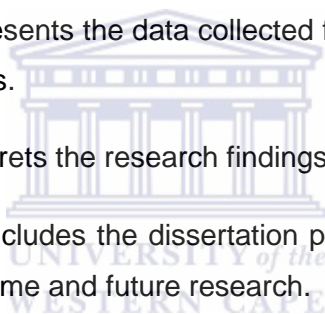
Chapter two reviews the literature on information literacy in higher education, information literacy education, assessment and business education

Chapter three describes the research design and methodology.

Chapter four summarises and presents the data collected from the questionnaire responses, group assignments and interviews.

Chapter five discusses and interprets the research findings.

Chapter six summarises and concludes the dissertation providing recommendations for the MBA information literacy programme and future research.



CHAPTER 2: Literature Review

2.1 Introduction

It seems that the development of information literacy education at tertiary level is mostly dependent on enthusiastic academic librarians. This is not an easy task for librarians as this process comprises further training in information literacy and education practice and also implies that the librarian has to step out of the library and collaborate with academics and administrators to develop and teach information literacy to the entire student population. The growing need to demonstrate the value of information literacy to authorities is leading towards more formal information literacy assessment. The desired outcome of the collaboration is to develop and present an information literacy programme which produces an information literate graduate who will be able to continually grow and adapt to the ever changing work environment. The previous chapter was an introduction to the study. This chapter reviews information literacy in terms of the different approaches to information literacy education, business education and information literacy, graduate information seeking behaviour, information literacy in higher education, and information literacy assessment.

2.2 What is information literacy?

Information literacy is defined in many ways from different viewpoints. Orr, Appleton and Willin (2001: 457) define it as “the ability to locate, manage, critically evaluate, and use information for problem solving, research, decision making, and continued professional development”. Doyle (1992: 8), on the other hand, takes into account the vast variety of information sources in defining information literacy as “the ability to access, evaluate and use information from a variety of sources”. Doyle (1992) and Orr, Appleton & Willin (2001) use the pragmatic approach to information literacy, while Kuhlthau (1993) and Bruce and Candy (2000) use a more holistic approach. Kuhlthau (1993: 3) sees information literacy as a way of learning and making meaning. While Bruce and Candy (2000: 7) look at information literacy as a “way of engaging with and learning about subject matter; it is about using information in a variety of meaningful ways”.

One of the reasons for so many definitions of information literacy could be the many skills involved in being an information literate person. According to Bruce (1997: 21-25),

information literacy involves the following elements that have developed since the information age:

1. Information technology literacy - the many technologies being developed and used for producing, managing, storing, disseminating and accessing information;
2. Computer literacy - understanding the structure and operation of the computer, knowing how to use software packages;
3. Library literacy - the ability to use libraries, using the range of tools for accessing information available through libraries;
4. Information skills - topic analysis, information seeking, storing, evaluation, and presentation; and
5. Learning to learn and lifelong skills.

All these skills combine to develop an information literate person. Information literacy researchers base their definition of information literacy on aspects that for them are important. Doyle (1992) says information literacy is a subjective process where the individual experiences information literacy as objective and external. Some information literacy researchers such as Eisenberg and Berkowitz (1990) and Kuhlthau (1993) see information literacy as a process. It is a process that consists of stages or phases that an individual go through when seeking information (Lupton, 2008: 30). The Big6 model of Eisenberg and Berkowitz (1990) concentrate on the use of information literacy skills for problem solving and advocate the transferability of these skills. Kuhlthau's (1993) *Information Search Process* is based on students constructing their own meaning while doing their research. She takes into account the emotional up's and down's of doing research as well as going back a step or two in the process when the information process is not fully completed. Lupton (2008: 30) identifies the ACRL standards for higher education (2000) as a model that consists of a list of skills, attributes, attitudes and knowledge.

Bent (2008) constructed a mind map of the information literacy landscape (see Figure 2) through which a person moves. The mind map brings all the external factors and all the personal influences together that create the extensive information literacy landscape. It shows how complex information literacy is and why the definitions of information literacy are so varied. The debate about the definition and the concept of information literacy is still on-going. Librarians in higher education should find the definition that suits their needs on which to base their information literacy education.



Figure 2 Information Literacy Landscape (Bent, 2008)

2.3 Information literacy in higher education

What follows is a brief history of information literacy in higher education, information literacy in South Africa and more specifically information literacy at Stellenbosch University.

2.3.1 A brief history of information literacy in higher education

Saunders (2010: 3-10) described the history of information literacy in academic libraries as follows:

- Academic libraries in America and Europe in the 17th -19th centuries required patrons to request particular publications from library staff who retrieve it for them;
- In the mid- to late 19th century the curriculum expanded and graduate instruction increased and library collections grew larger. Patrons needed greater access to collections and the need for bibliographic instruction arose;
- Only in the late 1960's did bibliographic instruction become important to academic librarians;
- The 1980's were seen as the second generation of bibliographic instruction, where a more theoretical foundation was given to the service;
- Technology changed bibliographic instruction from skills-based instruction to online-based instruction. This led to the shift away from bibliographic instruction to information literacy;
- The American Library Association (ALA) outlined the concept of information literacy in 1989; and
- In 2000 the ALA's Association of College and Research Libraries published the Information Literacy Competency Standards for Higher Education.

This brief history shows that the more higher education became accessible, the bigger libraries grew and the more information was available. This changed the nature of the preservation, storage and availability of library resources. This also changed the way academic librarians worked and their positions within academic institutions.

2.3.2 Information literacy within higher education in South Africa

In 1996, the Cape Library Co-operative (CALICO) launched a large information literacy needs assessment study, the results of which were published by Sayed in 1998 (De Jager & Nassimbeni 2003: 108). This study reported on the state of information literacy on five tertiary education campuses in the Western Cape. It showed significant discrepancies between students from historically disadvantaged and historically white universities. Students from historically white universities, who received more funding from the state during apartheid, of which the University of Stellenbosch was one, had in general better

education and more access to libraries and information technology. These students were better equipped for university education. Students from the historically disadvantaged universities, in general, enter their university career with poor primary and secondary education, have had limited access to libraries and information technology and are not fully equipped for university education.

In 2003 De Jager and Nassimbeni (2003: 110) distributed a brief questionnaire among the attendees of the annual Library and Information Association of South Africa (LIASA) conference. The results indicated that collaboration was taking place between the library and various academic departments in terms of information literacy education and most librarians were in favour of integrated information literacy education. However, not many parent institutions included information literacy as part of their strategic mission (De Jager & Nassimbeni, 2003: 110-113). An information literacy workshop for academic librarians in 2004 agreed that the South African Qualifications Authority (SAQA) be approached to accept the ACRL Standards for use in South Africa, with the addition of the final CAUL standard relating to lifelong learning as a sixth standard (De Jager et al., 2007). Although going the SAQA route has not been successful, the Committee for Higher Education Librarians of South Africa (CHELSA) was mandated to create a national framework for Information Literacy Training (ILT) for its 23 South African university members in 2007. The main outcome was the adoption of the ACRL (2000) definition of information literacy and an agreement on guidelines. To date, University librarians continue to develop their own information literacy programmes with little cooperation, coordination or consensus among universities and their libraries about what, when and how information literacy should be taught (Esterhuizen & Kuhn, 2010: 84).

In 2007, King's doctoral thesis was based on the study of incoming undergraduate Arts students at the University of the Western Cape. She assessed their competencies and proficiencies by conducting a pre- and post-test of students who completed an information literacy course and compared this result with information literacy initiatives within disciplines. This research was conducted over a period of three years. The results of the research showed that formal information literacy education is essential for incoming students at the University of the Western Cape. In Davids' (2010) Master's thesis she assessed the information literacy education of first year engineering students at Cape Peninsula University of Technology. Her action research consisted of two workshops aimed at teaching students how to find relevant information for an essay and how to reference. Results of her research

show significant improvement between the pre- and post-test, proving the necessity for information literacy. Both King (2007) and Davids (2010) based their information literacy assessment on parts of the ACRL Standards.

2.3.3 Information literacy at Stellenbosch University (SU)

In 2003, the Academic Planning Committee, the Senate and Council of University of Stellenbosch approved the *Guidelines for the Integration of Information Literacy in all Undergraduate Learning and Teaching Programmes*. The aim of this document was to provide guidelines to faculties and academic environments in how to achieve information literacy in all programmes. In 2004 this document was revised (*Revised Guidelines ...2004*). The 2004 document states that the integration of information literacy was to a large extent already being implemented in learning and teaching programmes. Currently the SU Library and Information Service distinguishes between integrated, related and generic information literacy training. The integrated information literacy is a credit bearing course within an academic module. At USB, information literacy is integrated into the Research Methodology course for MBA's. Related information literacy is training, on request linked to an assignment. The generic information literacy is part of the general orientation of especially first-year students.

One of the strategic directions of the University of Stellenbosch Library and Information Service is to partner with faculties in the development of information literacy in terms of:

1. The development of credit bearing, curriculum-integrated information literacy programmes on campus for all faculties and incorporating fundamental research skills and concepts; and
2. The continued implementation, access and improvement of information literacy presented in general education courses (The Strategic Directions 2010-2015).

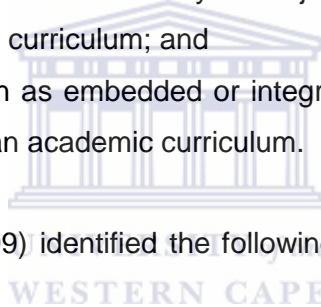
The University of Stellenbosch as a whole and the University of Stellenbosch Library and Information Service in particular is working hard to integrate information literacy into all courses in order to equip students to be lifelong learners. The end result of the Strategic Directions 2010-2015 is to move from less generic and related information literacy towards more integrated information literacy education. To integrate information literacy into the curriculum requires a good working relationship between librarians and academics in the

collaborative effort of designing, teaching and assessing a course incorporating information literacy. By integrating information literacy into a course, students learn information literacy skills within their subjects/courses. Information literacy is necessary to empower students to do research for their own academic success and for the success of the university.

2.4 Approaches to information literacy education

According to Wang (2010: 57), there are four approaches to providing information literacy education in higher education. They are the:

- extra-curricular approach or generic information literacy teaching, where information literacy is taught outside the curriculum;
- stand-alone approach is an independent curricular course devoted to information literacy;
- inter-curricular, where information literacy is subject or course related and is taught as add-in for an academic curriculum; and
- intra-curricular also known as embedded or integrated approach, where information literacy is integrated into an academic curriculum.



Doherty, Hansen and Kaya (1999) identified the following methods for information literacy education:

- discipline specific, in which basic library instruction is given to support writing classes;
- course-specific instruction, which consists of advanced sessions on higher-level research concepts such as controlled vocabulary and citation techniques; and
- credit classes, which emphasise critical thinking and information literacy skills.

The intra-curricular information literacy, better known as the integrated education approach, is defined as being “woven into the curriculum’s content, structure and sequence” (ACRL, 2000: 5). Wang (2010: 59), asserts that the integrated information literacy education is advocated as the most effective way of presenting information literacy education. This is confirmed by the ACRL standards and best practice bias towards this teaching method, according to Eland (2008: 103). Bruce (1997: 60) agrees that students cannot learn information literacy without engagement with discipline content as they search for information. Cooney’s 2005 research shows that only 35% of 399 libraries accredited by the

AACSB provided business information literacy instruction by integrating it into core business program courses while 17% integrate it into other business program courses. More recently Davis, Lundstrom and Martin (2011) studied the librarians' views on the effectiveness of credit-bearing and integrated courses. They sent a survey via listservs and received 276 responses and found that librarians who teach both methods prefer the credited course. The reason for this is because the credit-bearing course is longer and more in-depth. The researchers state that the choice of the instruction model may depend on institutional support or perceived support. The integration of information literacy depends upon collaboration between university administration, academics and the library. The quality of collaboration determines how embedded information literacy is within the institution.

2.4.1 Collaboration

Information literacy is a campus wide issue. University students, especially post graduate students, need to be able to undertake research independently. For this to occur, students need to be information literate. Collaboration between librarians, academics and administration is necessary to establish formal information literacy education. Librarians, because of their association with handling information, have been advocating information literacy to academics and administrators. In many cases librarians are finding it difficult to convince academics and administrators of the necessity of information literacy. Academics assume that students, especially graduate students, already have information literacy skills or that they will become familiar with the skills as they proceed with their course work. Administrators cannot find the time or resources necessary for information literacy education within the students' course work. Information literacy in higher education can function at different levels (Andretta, 2005: 50-51):

- Institutional level, where they offer guidance for policy development within subject and professions and provide evaluation strategies needed to assess effectiveness of information literacy programs;
- At programme level to frame curriculum objectives, learning outcomes and assessment criteria; and
- At student level as it gives learners an awareness of the importance of information literacy.

In order for information literacy to be successfully implemented within an academic institution, it should operate at all levels. The institution should develop an information literacy policy which would guide business academics and librarians in the development of a curriculum to ensure an information literate outcome for all students. This would mean developing collaborative relationships with different partners within the institution.

Wang (2010: 99) describes collaboration as:

a partnership approach when two or more people from different departments in an institution work independently but are also interconnected by an agreed common goal to plan and design a curriculum with the integration of information literacy.

Bhavnagri and Bielat (2005: 122) define librarian-academic collaboration as follows:

in this collaborative effort, the librarian acts as expert, scaffolding the faculty member's skill in technology; the faculty member is an expert, scaffolding the librarian's knowledge of research and teaching pedagogy; and the faculty member and librarian (as peers) collaborating to scaffold students' research methods, knowledge and skills.

Research carried out by Booth and Fabian (2002) and Wang (2010) views collaboration as a multiple partnership. Besides the librarian and academic they also take into account other possible partners such as information technology support, educational advisors and other collaborators within the institution who could contribute to the development of the information literacy programme. Bhavnagri and Bielat (2005) concentrate on librarian-academic collaboration. Most of the research on collaborative information literacy concentrates on library-academic relationship, most likely because most information literacy instruction takes place at course level (Saunders, 2010).

Ivey (2003) and Wang (2010) considered the different elements of collaboration. They identified shared understanding, mutual respect, tolerance, and trust, and shared knowledge as important for good collaboration. Researchers such as Ivey (2003), Owusu-Ansah (2004), Saunders (2010), and Wiggill (2011), found that there are several barriers that obstruct collaboration. Foremost is the preparedness of academic librarians to take on a teaching role for which they have no, little or some formal qualifications; the status of the librarian within the academic institution - librarians are seen as support staff and not as part

of the academic staff; academic staff is not willing to share their class time and the increase in workload that developing and implementing of information literacy would mean.

Research completed by Cooney (2005) shows that only 7% full collaboration takes place between the library and business academics, while 73% say that some collaboration takes place. Cooney sampled 399 libraries accredited by the Association to Advance Collegiate Schools of Business (AACSB) by e-mailing questionnaires to the business librarian, business liaison or instruction librarian. Atwong and Heichman Taylor's 2008 research demonstrates that the team effort of librarians and business academics shows significant perceived and objective learning gains by students at California State University-Fullerton. Their research concentrated on collaboration in the evaluation of the Web-based databases to replace the CD-ROM-based service in order to enhance students' access to discipline-specific information. The results of a study conducted by McInnis Bowers et al. (2009) show that collaboration is an effective means of improving students' information literacy. Business professors and reference librarians worked together on an introductory business course at Birmingham-Southern College. After completing the course students were surveyed on the use of printed and electronic sources.

Collaboration is important for the integration of information literacy into the curricula in higher education. Not only does collaboration improve students' learning outcomes, students' perceptions of the importance of information literacy are also influenced (Anderson & May, 2010).

2.5 Business education and information literacy

Prominent management expert and author, Peter Drucker, coined the term "knowledge worker" in 1959 (Sokoloff, 2012: 5). A knowledge worker is a person who is able to search and analyse information to make business decisions. Drucker (1994: 108) goes further to say "the biggest challenge to business will be obtaining ... outside information so that good decisions can be made". We are currently living in an information society where being a knowledge worker is essential. The information society is driven by the continual growth in information technology and its accompanying information growth. In an information society information is the basis of economic growth. Hawes (1994) describes the information society "as one in which the quality of life, as well as the prospects of social change and economic development, depend increasingly on information and its exploitation".

According to Sokoloff (2012), Culley, Healy and Cudd conducted a survey of business school students in 1977 and reported four key findings which Sokoloff thought are still relevant today: (1) A minority of students used the library at all, (2) business students generally regarded library research skills as unimportant in professional development, (3) a woefully large majority of students was unfamiliar with fundamental business periodical indexes and financial balance-sheet data sources, and (4) students generally don't habitually read business or professional periodicals.

Several studies were completed on information literacy in the business education environment. Johnston (1999) studied the role of the information professional within the business library. He found that information professionals felt powerless within the business education environment and that it was crucial for them to define and promote their essential role within the academic environment. Julien et al. (2011) examined the information literacy instruction in Canadian business schools. This was undertaken to identify successful outcomes and to find opportunities to increase the scope and magnitude of information literacy instruction. Cooney and Hiris (2003) supported the need for information literacy instruction for business students at post-graduate level. In their research they developed a collaborative framework for integrating information literacy into a graduate finance course and for assessing the results. This collaborative framework enhances the level of collaboration between the library and the classroom. In 2005 Cooney studied the progress of information literacy instruction at three business schools. This study found that, although information literacy instruction is widespread and prevalent, it is still developing. This study also revealed that the majority of librarians reported not assessing their students' business information literacy. Detlor et al. (2011) studied the factors affecting learning outcomes of information literacy instruction at business schools. Results showed that instruction tied to an assignment and delivering instruction just in time when it is most needed seems to yield positive student learning outcomes. The McInnis Bowers et al. (2009) study describes the collaboration between business professors and reference librarians in an introductory business course and the resulting student perception increase in research skills and use of business information. Simon (2009) argues that graduate business students need formal business information literacy instruction to succeed in their studies and as business leaders through collaboration between librarians and business academics. These studies show the recent growth and development in information literacy within business education.

Most of the recent research (Cooney & Hiris, 2003; Atwong & Heichman Taylor, 2008; McInnis Bowers et al., 2009; Simon, 2009) on information literacy in higher education concentrates on the important issue of collaboration between library and business academics. It is clear that these researchers see collaboration as essential to the success of information literacy education.

2.6 Graduate information seeking behaviour

Pettigrew, Fidel and Bruce (2001) defined information behaviour as the study of how people need, seek, give and use information in different contexts, including the workplace and everyday living. Studies show that searching for information on Google is the first step for many students in their research process. They find Google is easy and convenient to use. Snavely (2008: 37) asserts that special attention should be given to teaching students how to find information, how to evaluate information and how to use the information to answer their questions. Students need to learn how to use information ethically and the role that it plays in society.

According to Campbell (2008: 22), users will define the information literacy skills they require. Students come to the library with a variety of skills and from a variety of environments. She maintains that much more of the instruction will become point-of-use or just-in-time as users identify gaps in their knowledge and seek help. Snavely (2008: 42) is of the opinion that the library needs to be on the students' wavelength in order to form part of the students' collection of academic tools. George et al. (2006) agree with Snavely (2008) and add that the academic library needs to know what information students use and what influences their searching, finding and use of it.

The George et al. (2006) study shows that convenience, speed and ease of use influences students information search behaviour. This has an effect on their use of the library and other resources. Long and Shrikhande (2007) studied the impact of formal information literacy instruction in a business school at graduate and undergraduate level on their information seeking behaviour. They found that sustainable information literacy instruction and assessment may lead to successful research skill acquisition by students. A 2011 study conducted by Korobili, Malliari and Zapounidou found that discipline does not affect information seeking behaviour critically. They found that graduate students in the faculties of Philosophy and Engineering at the Aristotle University of Thessaloniki demonstrate low to

medium level of information seeking behaviour demonstrating the need for information literacy skills and instruction.

2.7 Information literacy assessment

The assessment of information literacy education has become more imperative for the information literacy librarian. Librarians can no longer rely on library input and output to assess the library's impact on academic life. They need to go further and evaluate what impact the library's information literacy efforts have on student and research outcomes. Information literacy assessment is a yardstick to measure the success of the information literacy intervention; it is a way to convince academic and university administrators of its merits.

The terms assessment and evaluation are often used interchangeably. Greene (1997), made a clear distinction between information literacy assessment and evaluation. Information literacy assessment is defined by Greene (1997), as "the systematic gathering of information about component parts of the thing to be evaluated" (for example, assessing student learning after completing a course). Information literacy evaluation is defined as "broader than assessment and involves examining information about many components of the thing being evaluated and making judgements about its worth or effectiveness" (Greene, 1997). This study assesses student learning in a once-off information literacy session as well as evaluates the information literacy education programme received by the MBA students.

With the development of information literacy, standards were developed to "systematize the behaviours and skills of information literacy in a way that enables them to become assessable just as all other parts of the formal curriculum are" (Lloyd, 2010: 55). These standards are used to evaluate information literacy at class, programme or institutional level depending on how information literacy is valued by the academic institution. The ACRL Information Literacy Competency Standards for Higher Education are used as a benchmark to assess and evaluate the information literacy which MBA students receive.

Most of the ACRL standards can be integrated into formal library instruction relatively easy, allowing you to cover most of your bases and be assured of including the key issues in the library research process (Neely, 2006: 9).

The ACRL Standards consist of five standards (as listed in Chapter one) and twenty-two performance indicators. See Appendix 1. These standards are focused on the information needs of students in higher education. The standards also list a range of outcomes that can assist librarians and business academics to develop their own assessment standards geared towards their own mission and goals. The ACRL support the customisation of the standards to the academic library's needs.

When planning information literacy assessment, it is important to know if the results will be used for formative or summative feedback (Oakleaf & Kaske, 2009: 278). Formative feedback refers to continuous feedback during the information literacy programme and summative feedback occurs at the end of a program. The Jason (2008) study made the following distinction between formative and summative evaluation:

Table 1 Complementary approach to program evaluation (Jason, 2008)

	Formative	Summative
Purpose:	To improve a program's operation by examining its processes	To judge the worth, merit, or success of a program based on its effectiveness in meeting goals
When conducted:	In the early stages of a program's implementation and at the time a summative assessment is made	At the end of a program or agreed upon date after it has been in operation for a sufficient length of time to measure its impact
Data source:	Relies primarily on opinions from staff delivering the program on how it can be improved	Student outcomes (e.g. test and attitude scores): opinions of students, teachers, administrators, and parents

The formative evaluation data source as described by Jason above does not take into account the other role players who may contribute to the overall programme, (for example, educational experts, curriculum advisors) as previously discussed under the sub-heading Collaboration.

Oakleaf has produced various papers on information literacy assessment to assist academic librarians in the world of academic assessment. In her 2008 paper, she discusses the dangers and opportunities of information literacy assessment approaches. She has

produced an information literacy instruction assessment cycle (2009a) and a guide to writing an information literacy plan (2009b). Oakleaf and Kaske (2009: 278) assert that deciding on which feedback to use is important when choosing an assessment approach.

Academic librarians have embraced the fact that libraries contribute to student learning and development. It has become increasingly important for academic librarians that these skills be assessed against information literacy standards to show how the library contributes to graduate attributes. Oakleaf (2008: 233-247), identifies three assessment approaches:

1. Fixed-choice test – are used to provide information about the students' library skills before and after library instruction. Tests can be adjusted to what the library really wants to know about student learning. These tests do not assess students' high-level thinking skills;
2. Performance assessment – require students to perform real-life applications of knowledge and skills. Students are assessed by observation as they do a task or to examine the products that results from a task performance and judge their quality. Performance assessment helps students to understand the relevance of what they learn. This assessment method is costly to develop, administer and score; and
3. Rubrics – is a scoring scheme to guide and analyse student work. With the rubrics student know what is expected from them and librarians have a detailed description of what is being learned. Creating a rubric requires time, practice and revision.

The choice of information literacy assessment approach, according to Radcliff et al. (2007: 20-22), is determined by the following questions:

- How much time does it take to prepare, administer, and analyse;
- What level of financial commitment is required to administer the assessment tools;
- In what setting is the tool most useful, classroom, programmatic or institutional;
- What kind of information (affective, behavioural or cognitive) will the tool tell you about the student;
- How much effort will it take to obtain student participation;
- Is the tool one you can implement on your own, or will you need to secure business academic or administrator consent and collaboration; and
- How much know-how does the tool requires.

A quick survey of the research consulted in this (current) study shows that pre- and post-tests are mostly used to assess students' information literacy (King, 2007; McInnes Bowers et al., 2009; Simon, 2009; Anderson & May, 2010; Davids, 2010), while interviews are mostly used to obtain feedback from librarians and collaborators (Wang, 2010; Detlor et al., 2011; Julien et al., 2011; Wiggill, 2011).

2.8 Conclusion

Information literacy in higher education is a labour intensive issue. Academic librarians should be prepared to play a leading role in establishing information literacy within their institutions. This will mean convincing academics and administrators to develop, implement and assess information literacy and evaluate programmes continually. All this effort towards graduating information literate students is important to produce employable students within the information society. Within business education, graduating information literate students will play a vital role in the economic growth of our developing country.



CHAPTER 3: Research Design and Methodology

3.1 Introduction

As mentioned in Chapter one, this chapter revisits the problem statement and delineates the research questions. The research design and methodology used to conduct the study are explained as are the data collection tools.

3.2 Evaluation research

This study uses the ACRL information literacy standards as its theoretical framework. The method employed is evaluation research which falls under applied research. Evaluation or evaluative research has been defined as “the systematic assessment of the operation and/or the outcomes of a program or policy, compared to a set of explicit or implicit standards, as a means of contributing to the improvement of the program or policy” (Weiss, 1998: 4). Evaluation research has been used in the social sciences and education to test the effectiveness of programmes or interventions (Patton, 2002: 218). In this study evaluation research determines the effectiveness of the information literacy education that MBA students receive. Forty-two different types of evaluation have been identified (Mathison, 2005). This study adopts a combination of process and formative evaluation. Process evaluation, according to Robson (2002: 208), is concerned with answering the ‘how’ or ‘what is going on’ question. Formative evaluation, according to Robson (2002: 208), helps with the improvement of the programme. The study examines how well information literacy is embedded in the MBA research methodology course. The nature of the collaboration between information literacy facilitator and lecturer becomes apparent during the interviews. Their perceptions of the information literacy component of the research methodology course should assist the researcher in understanding the challenges as well as the achievements of the course.

The purpose of this study is not to make judgments on the worth or merit of the information literacy course. Rather, the intention is to provide an appraisal which can “shape” and possibly improve the intervention (Patton, 2002: 218, 220). This study uses the following

data collection techniques: a pre- and post-information literacy questionnaire; assessment of group assignments using a rubric; and semi-structured interviews conducted with the information literacy educator and research methodology lecturer. The researcher sat in on the information literacy intervention as a non-participant observer. The observations made became useful in the discussion of the results.

3.3 Research questions

In this study the researcher wants to evaluate the information literacy education provision for MBA students at USB. The research questions are:

1. To what extent does the design of the information literacy intervention support ACRL standards?
2. How effective is the information literacy education?
3. What are the opportunities and challenges for greater integration of information literacy within the MBA course?

The sub-questions identified from the main research questions are:

1. Which of the ACRL standards are covered in the information literacy intervention and to what extent are they being covered?
2. Is a once-off, 90 minute information literacy intervention sufficient?
3. What interventions can be developed to strengthen the information literacy of MBA students?

3.4 Data collection techniques

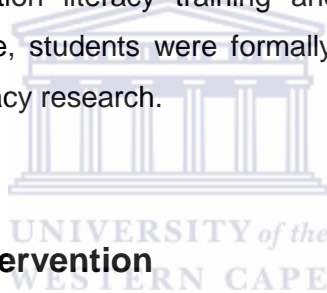
The researcher used a mixed method design which includes both quantitative and qualitative elements. This method, according to Leedy and Ormrod (2010: 97), gives a more holistic picture of the phenomenon that is being evaluated. The qualitative research method brings with it subjective, descriptive, interpretive and evaluative elements. The quantitative research method brings with it the element of generalising results from numerical data. These qualitative and quantitative elements with its benefits and limitations are combined to complement each other's weaknesses.

The main data comes from a questionnaire; assessment of the group assignments; and interviews. By using multiple data collection techniques, the accuracy and validity is enhanced and findings corroborated.

3.5 Research sample

The MBA course participants were chosen as the sample for this study because the MBA course is the only course that includes formal assessment of students' information literacy at USB. This MBA course is available for full time, part-time and modular studies with new courses starting at the beginning of each year. This research focuses on the 58 new MBA students who started their studies on 30 May 2012.

This particular group of MBA students received their information literacy intervention on their first day on campus on Wednesday, 30 May 2012 between 19:15 and 21:15. Before the commencement of the information literacy training and the administering of the pre-information literacy questionnaire, students were formally asked to assist and consent to being part of the information literacy research.



3.6 Information literacy intervention

The only formal contact for information literacy education is the once-off information literacy intervention. This information literacy intervention took place in a computer laboratory at the USB campus. The laboratory consisted of 46 computers and was twelve computers short to accommodate the 58 students. More seating had to be brought into the laboratory. The result was that twelve students had to share a computer and at least one student could not participate in the hands-on training.

3.6.1 Pre- and Post- information literacy questionnaire

According to Staley, Branch and Hewitt (2010) many studies show that the pre- and post-information literacy questionnaire is an effective way of measuring the success of information literacy instruction. A pre- and post-test as it is most commonly known, is the most frequently used quantitative evaluation tool as demonstrated in Chapter two and used

by Anderson and May (2010); Davids (2010); and Simon (2009). A pilot study was conducted. After the pilot study it was decided to include a “not sure” and “or” option to question eight where students were asked where they start their search for academic information. See Appendix 4 for the pre-information literacy questionnaire. Participants were also asked to rank their search preferences, 1st, 2nd, 3rd, and so on. According to Oakleaf (2008: 235) the locally developed questionnaire has the advantage that it can be adapted to local and current objectives. The locally developed questionnaire was administered before the information literacy intervention on 30 June 2012. The post-information literacy questionnaire (see Appendix 5) was administered on the MBA group’s second contact week after their first research methodology lecture on 1 August 2012 at 17:30. The assessed information literacy group assignments were handed back to the students at this point.

As this was the first information literacy questionnaire administered to MBA students at USB, the researcher wanted to assess the extent of the students’ information literacy in terms of their use of electronic databases, the identification and use of scholarly sources, students’ ability to develop a search strategy, plagiarism and students’ perceptions of their information literacy skills. The pre-information literacy questionnaire consisted of 12 fixed-choice questions of which four questions were in the form of a Likert scale. This made the questionnaire easy to score. The fixed-choice questions allowed the researcher to make comparisons and draw conclusions. The questionnaire was kept brief because of time limitations. It took less than 15 minutes to complete and resulted in a high response rate; 57 of the 58 students in the class completed the pre-information literacy questionnaire.

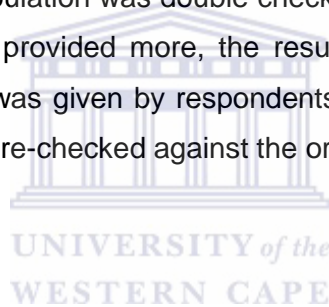
Two questions were changed in the post-questionnaire. The two questions on plagiarism, that had a high positive response rate, were replaced by two open-ended questions about what students found most useful in the information literacy intervention and in which areas they still require help. The open-ended questions allowed the respondents to comment on the information literacy intervention they received as well as the information literacy areas in which they still needed help. This test took less than 15 minutes to complete. Fifty three (53) of the 58 students completed the post-information literacy questionnaire.

Most of the questions in the questionnaire concentrated on the first two ACRL standards (ACRL, 2000): 1) The information literate student determines the nature and extent of the information needed; and 2) The information literate student accesses needed information effectively and efficiently. These standards were chosen because the researcher wanted to

gauge the student's knowledge and practice of academic inquiry. The information literacy intervention is also based on these two standards. Students were urged not to guess and were given the option to answer 'not sure' if they did not know the answer.

The disadvantages of the closed questions in a questionnaire are that participants may select an answer to a question that they may not have answered otherwise. Another disadvantage is that respondents answer questions of which they have no knowledge or opinion on. The benefits of administering an anonymous pre- and post-questionnaire is that the response rate is high because it is easier and quicker for respondents to answer. The choice of responses can clarify questions for respondents (Neuman, 2006: 287).

The *Statistica* statistical programme was used to tabulate the questionnaires. This programme was used because of the ease of use and the range of statistics available (Leedy and Ormrod, 2010: 283). A number was assigned to each answered questionnaire as well as to each response to a question. Each of the responses was tabulated in the Statistica programme and the tabulation was double checked. In cases where respondents had to choose one answer but provided more, the result of that particular question was disqualified. Where no answer was given by respondents, no results were tabulated. The data generated were printed and re-checked against the original questionnaire.



3.6.2 Assessment rubrics

The group assignment was handed out and discussed during the information literacy intervention. The MBA class was divided into groups during the course of the first contact week. The completed assignment was submitted via Turnitin, a plagiarism detection programme, by the group leaders by 18 June 2012. The assignment was then graded by the information literacy facilitator and the researcher. Marks were allocated to the students' responses in the assignment. These were the marks that the students' were handed. The researcher created a rubric to re-assess the groups' information literacy performance. See Table two. The reason for creating the rubric was to assess the groups' information literacy performance differently and perhaps more accurately than simply assigning marks. The researcher presented one group assignment and the rubric to her supervisor to assess. See Appendix 6 for the group assignment instruction.

Table 2 Information literacy rubric

	Novice (½ point)	Developing (1 point)	Proficient (1½ point)	Accomplished (2 point)
Define the information need	Unable to narrow topic	Understands nature & scope of assignment to some extent	Shows an increased understanding of information needed for topic	Able to develop a clear focus for topic
Generate keyword	Unsure of how to find information needed for assignment	Determines general keywords in relation to topic to begin searching with some success	Refines keywords and develops synonyms for search terms with some success	Approached keywords and search phrases expertly
Develop search strategy and retrieval	Unsure of how to combine keywords in a logical way	Able to combine keywords	Able to combine keywords in a logical way	Combine keywords to find the best results
Locate the relevant information	Unable to evaluate information quality	Limited ability to evaluate information quality	Moderate ability to evaluate information quality	Evaluates sources using discipline-specific criteria
a) Journal articles	Unable to evaluate information quality	Limited ability to evaluate information quality	Moderate ability to evaluate information quality	Selects the most up-to-date information in relation to the topic
b) Books	Unable to evaluate information quality	Limited ability to evaluate information quality	Moderate ability to evaluate information quality	Selects the most up-to-date information in relation to the topic
c) Completed theses/reports	Unable to evaluate information quality	Limited ability to evaluate information quality	Moderate ability to evaluate information quality	Selects the most up-to-date information in relation to the topic
d) Google scholar search	Unable to evaluate information quality	Limited ability to evaluate information quality	Moderate ability to evaluate information quality	Selects the most up-to-date information in relation to the topic
e) Newspaper articles	Unable to evaluate information quality	Limited ability to evaluate information quality	Moderate ability to evaluate information quality	Selects the most up-to-date information in relation to the topic
Motivation for choosing sources	Unable to motivate	Limited ability to motivate	Moderate ability to motivate	Excellent motivation
Presentation (layout, headings, legibility)	Novice (½ point)	Developing (1 point)	Proficient (1½ point)	Accomplished (2 point)

A rubric is “a fast, powerful, standardised mechanism for evaluating performance” (Fielden & Foster, 2010: 78). It normally comes in the form of a table with the criteria on the vertical axis and the performance level on the horizontal axis. The full rubric model as developed by the researcher utilizes selected ACRL standards, performance indicators and outcomes as criteria and four levels of the rating scale. The rubric can be a reliable method to score student assignments as it can limit bias towards students. The assignment given to MBA students assesses their: (1) understanding of the topic assigned to them; (2) ability to generate keywords to conduct their search; (3) search strategy; and (4) ability to locate relevant information.

The rubric criteria incorporated the following ACRL Standards: 1) The information literate student determines the nature and extent of information needed; 2) The information literate student accesses 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; and 4) The information literate student, individually or as a member of a group uses information effectively to accomplish a specific purpose.

The four performance rating levels are novice, developing, proficient and accomplished. The researcher assigned a numeric value to each of the performance levels to be able to calculate scores for individual criteria. This scoring rubric is analytic in nature. The analytic rubric scores individual parts of the product and then adds the individual scores to find the total score (Kan, 2007: 146).

One of the benefits of using a rubric in assessing student information literacy is that the detailed rubrics help to prevent inaccuracy (Popham, 2003: 95). According to Moskal and Leydens (2000), the development of the rubric clarifies assessment before the time and thus reduces subjectivity in grading assignments. One of the limitations of rubrics is that it may be poorly constructed (Oakleaf, 2008: 247). This could happen when the description of the performance levels are too vague. After the rubric was piloted, changes were made. The descriptions for the different criteria were changed. For example, the first task was to ‘define the information need’. The performance level was changed from ‘understands nature & scope of assignment’ to ‘understands nature & scope of assignment to some extent’ to describe the performance ‘developing’. For the same criterion, the performance level ‘accomplished’ was changed from ‘able to adapt search process to topic’ to ‘able to develop

a clear focus for topic'. Oakleaf (2008) adds that to use the rubric effectively, training is needed in order to be "normed" on a rubric. This entails a few hours of training and scoring students' assignment samples. The researcher found that this was indeed the case. To ensure reliability of the rubric the researcher analysed the consistency of scoring by re-grading the assignments multiple times and used the scores that matched as the best result.

The purpose of the assignment was for students to apply their newly learned knowledge and skills taught during the information literacy intervention. The rubric scores were not given to the students. The rubric was designed as part of the current study as an alternative form of assessment. Usually, rubrics are developed simultaneously with assignments and handed out to students with the assignment so that they know how they will be assessed (Oakleaf, 2008).

3.6.3 Semi-structured interviews

Semi-structured interviews were conducted with the information literacy educator and one of the MBA research methodology lecturers about their perceptions of information literacy. The information literacy facilitator is the manager of the University of Stellenbosch Bellville Park Campus Information Centre (USBI) and is a qualified librarian and trained teacher. She heads the information literacy interventions of all the Masters courses at USB. Specialists in different fields of research methodology lecture in the MBA research methodology course. The research methodology lecturer interviewed was chosen because of his extensive contact with students in helping them develop their research topic which students later present as a research proposal to him. According to Key (1997), interviews are a good way of collecting qualitative data such as perceptions and attitudes. The interview questions bore the research questions in mind. The interviewees were e-mailed the consent form as well as the interview questions three days before the scheduled interview in order for them to familiarise themselves with the questions and terminology and to ask for possible clarification. This gave the interviewees an opportunity to reflect on the questions and made the interview less pressured. With their permission the interview took place in the interviewees' respective offices. They also gave consent that the interview be recorded. See Appendix 7 and 8 for the interview questions put to the facilitator and lecturer respectively.

The interview with the information literacy facilitator took place in her office on 13 September 2012 at 14:00. The interview lasted 26 minutes. The interview with the research methodology lecturer took place on 21 September 2012 at 9:00. This interview lasted 15 minutes. The responses of both interviews are compared and evaluated in the next chapter.

3.6.4 Non-participant observation

A non-participant observation method was used during the information literacy intervention. A video recording was made of the event with the permission of the instructor and the participants. It was decided that the video camera should focus on the instructor because: 1) this research focuses on the evaluation of the information literacy intervention 2) the researcher did not want to distract the participants by focusing the camera on them. The advantage of making a video recording of the instruction was that the researcher could replay the event to gather comprehensive data from the observation. The researcher could also observe by listening to the recording how the students reacted to the instructions and the questions students asked during the intervention.

This observation assisted in answering the following questions related to the study:

1. Which of the ACRL standards are covered in the information literacy intervention?
The researcher compared the information literacy intervention and the ACRL standards to identify which standards were covered and which not.
2. Was there any reaction from the students during the information literacy intervention?
How involved was the class during training? Were any questions asked during the intervention?
3. What are the examples the information literacy librarian uses during her intervention?
Does it lean toward the overall MBA course or the research methodology course?
4. How is the assignment integrated into the information literacy intervention? How many times was reference made to the assignment?
5. How is the access and services of library staff presented by the information literacy facilitator (for future intervention)?
6. To what degree is the information literacy intervention integrated into the research methodology course?

The researcher started her observation by looking at the physical space where the intervention took place, who took part in the instruction, what was done during the intervention, the goals of the instruction and emotions during the intervention. The focus of the observation then shifted to the above mentioned questions. The data collected during the non-participant observation are incorporated into the discussion of the findings.

3.7 Evaluation of the methodology

One of the major limitations of this study was that the pre- and post-information literacy questionnaire erroneously omitted students' names. This error prevented the researcher from making a direct link between the results of the pre-questionnaire and post-questionnaire of individual students. The group assignment conducted by the MBA students also prevented the researcher from making direct linkages to individual students.

3.8 Conclusion

The objective of this study is to evaluate the information literacy education that MBA students receive using the ACRL information literacy standards as theoretical framework. This evaluation research uses a mixed method research design, by using both qualitative and quantitative research methods. By using a mixed method research design the researcher attempts to construct a holistic assessment of the information literacy intervention the MBA students receive.

CHAPTER 4: Results of the Study

4.1 Introduction

Chapter three dealt with the research design and methodology of this study. This current chapter reveals the results of the mixed method approach. This study used a pre- and post-information literacy questionnaire administered to an MBA group. The researcher interviewed the information literacy facilitator and one of the lecturers of the research methodology course. Finally the researcher applied the rubric to re-assess the MBA students' information literacy assignment.

4.2 Pre- and post-information literacy questionnaire results

4.2.1 Knowledge score

The knowledge score refers to the seven knowledge questions asked in the information literacy questionnaire. These questions had one correct answer and were statistically calculated to find the median. The knowledge score questions in the pre-information literacy questionnaire are numbers 2, 3, 4a, 4b, 4c, 5, and 6 of the questionnaire. These questions deal with: which sources are most appropriate for writing an academic assignment; what is distinctive about an academic journal; identifying the type of information resources for a given citation; Boolean logic; and the search strategy. See Appendix 3 and 4 for the pre- and post-information literacy questionnaire. The median score for the seven knowledge questions is five. See Figure 3. This shows that the students scored highly in answering the knowledge questions.

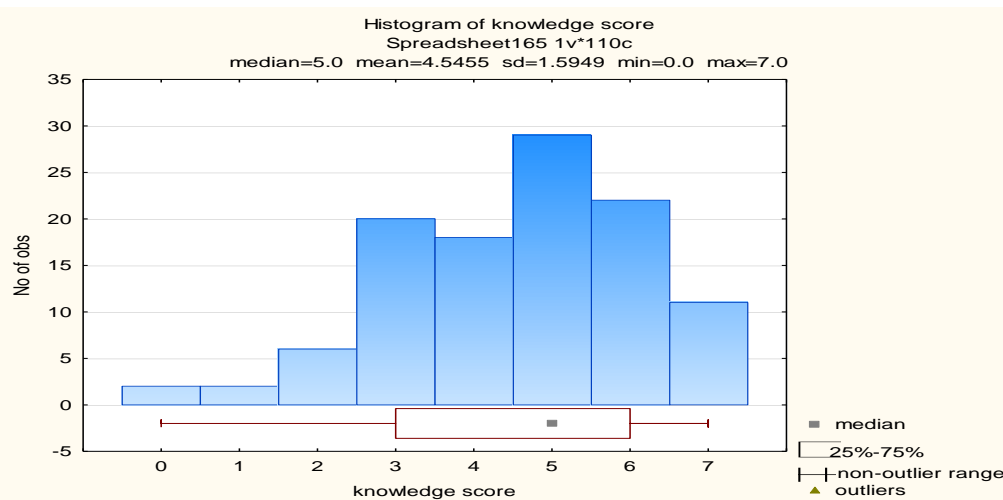


Figure 3 Knowledge score

A comparison of the mean knowledge score between the pre- and post-questionnaire saw no significant change. This indicates that there was no significant increase of knowledge by MBA students between the pre- and the post-information literacy questionnaire. See Figure 4.

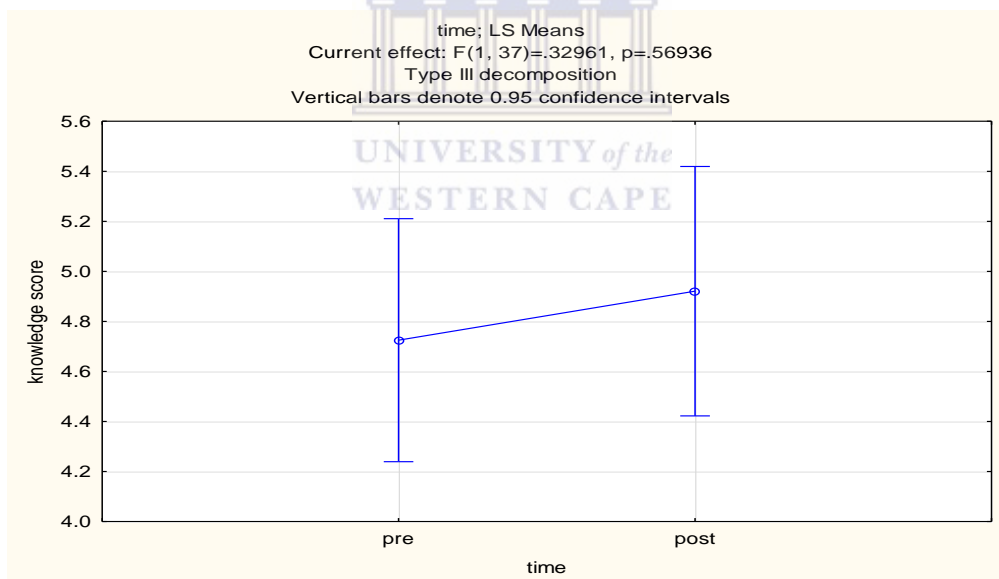


Figure 4 Pre- and post-information literacy questionnaire: Knowledge score

A technical problem that did not arise in the pilot study was that the first question asked for multiple answers while the rest of the questions only asked the respondents to pick one answer. Although this was stated in each of the questions, some respondents still provided two or more answers for question 2. These incorrect answers were not tabulated.

4.2.2 Database usage

Database usage refers to Question 1 in the pre- and post-information literacy questionnaire. The question states: Which of the following databases have you used before?; EBSCOhost, ScienceDirect, Emerald, McGregor BFA, Reuters, SACat (South African Catalogue), Other, None. There were no significant differences between the pre- and post-information literacy database usage scores for ScienceDirect, Emerald, McGregor, Reuters and other. See Table three below.

Table 3 Database usage

Databases	Pre-information literacy questionnaire	Post-information literacy questionnaire
EBSCOhost	17%	79%
ScienceDirect	23%	19%
Emerald	4%	15%
McGregor	4%	2%
Reuters	9%	8%
SACat	6%	66%
Other	9%	19%
None	60%	8%

Using McNemar's test, significant increase in the use of the databases EBSCOhost and SACat was found between the pre- and post-questionnaire of the MBA students tested. See Figures 5 and 6.

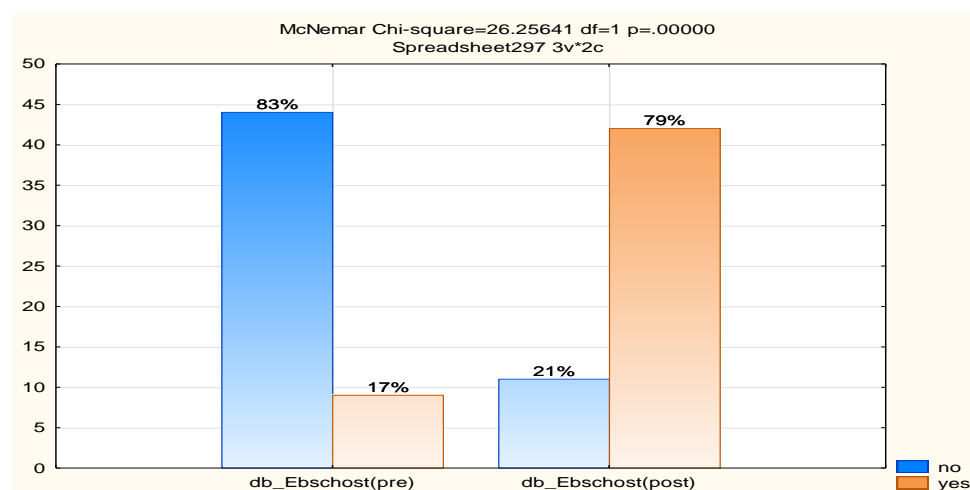


Figure 5 Database usage: EBSCOhost

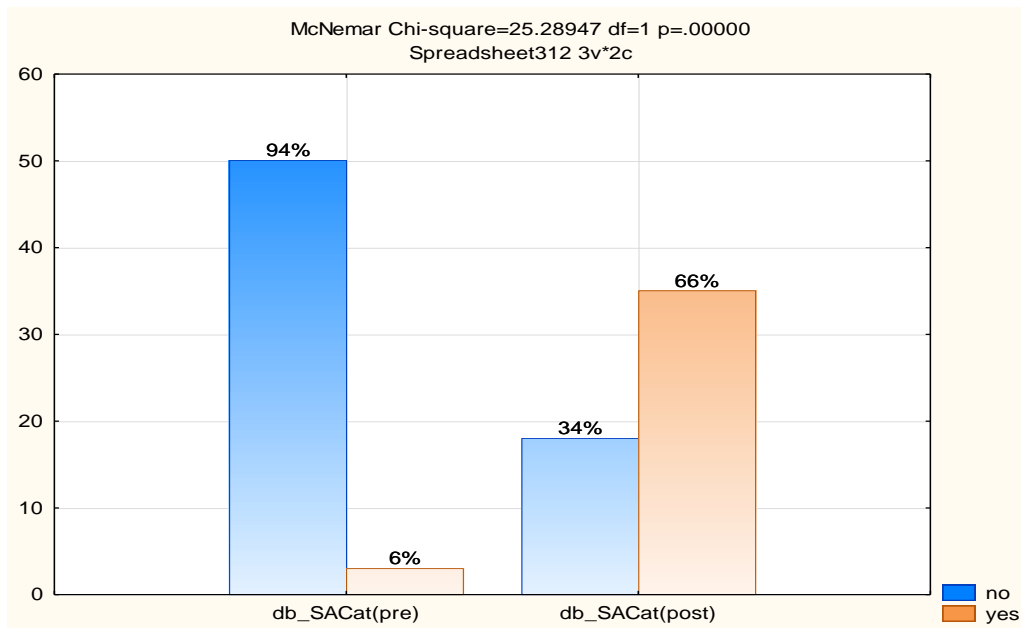


Figure 6 Databases usage: SACat

There was a significant drop in students not using any databases from the pre-questionnaire score of 60% to the post-questionnaire score of 8%. See Figure 7.

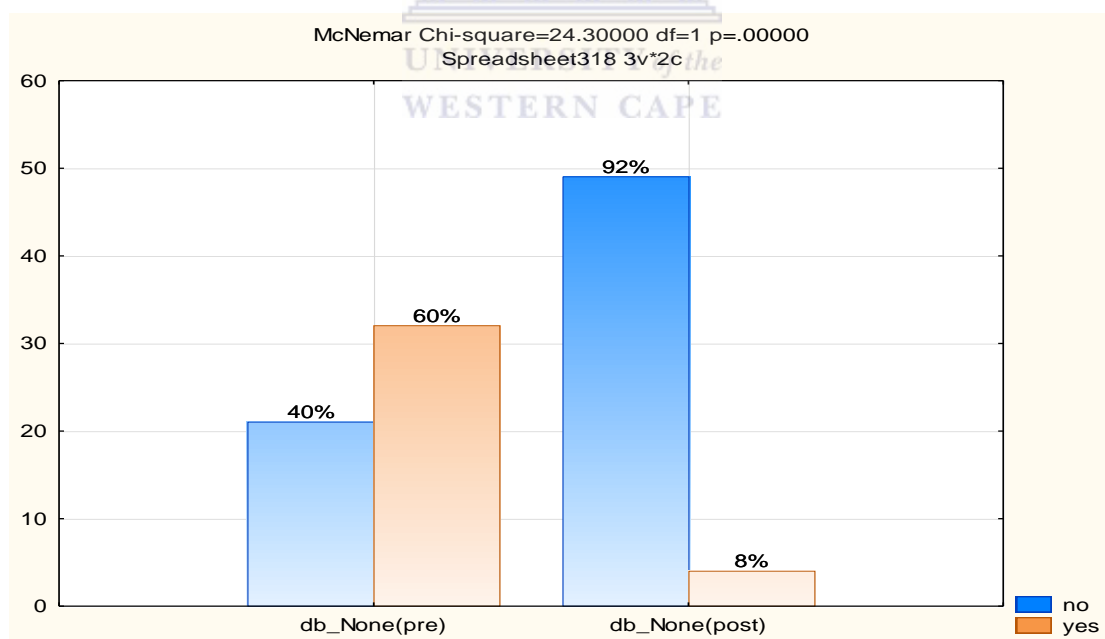


Figure 7 Database usage: Students not using databases

4.2.3 Likert scale questions

A Likert scale is a rating scale developed by Likert in the 1930's (Leedy & Ormrod, 2010: 189). It is used to evaluate behaviour, attitude and characteristics of people. According to Leedy and Ormrod (2010: 189) the 'phenomenon of interest needs to be evaluated on a continuum of, say, "inadequate to excellent", "never" to "always" or "strongly approve" to "strongly disapprove". The Likert scale questions are numbers 7, 8, 11 and 12 of the questionnaire. These questions deal with students' challenges in finding information, search strategy options, confidence in seeking scholarly information and levels of confidence in their information literacy skills. There were no significant changes between the pre- and post-information literacy questionnaire since the p-value was greater than 0.05. This means that no major change in students' information literacy took place with regard to these aspects.

Question 7 asked students to indicate their biggest challenge in finding information by choosing one option. The choices they were given were: formulating your information need and selecting appropriate key concepts; finding supporting literature/peer reviewed literature for you topic; effectively using databases; evaluating the quality of information found; and do not have any shortcomings. Although there were no significant changes between the pre- and post-information literacy questionnaire, the following statistics identify the changes students experienced:

- *Finding supporting literature* stayed the same at 23%;
- *Effectively using databases* went down from 25% to 15% as well as *evaluating the quality of information found* went down from 23% to 19%; and
- The scores that went up were: 1) *Formulating your information need* from a pre-questionnaire score of 25% to 33% in the post-questionnaire; and 2) *Having no challenges (shortcomings)* went up to 10% from the pre-questionnaire score of 6%.

See Figure 8 for full details.

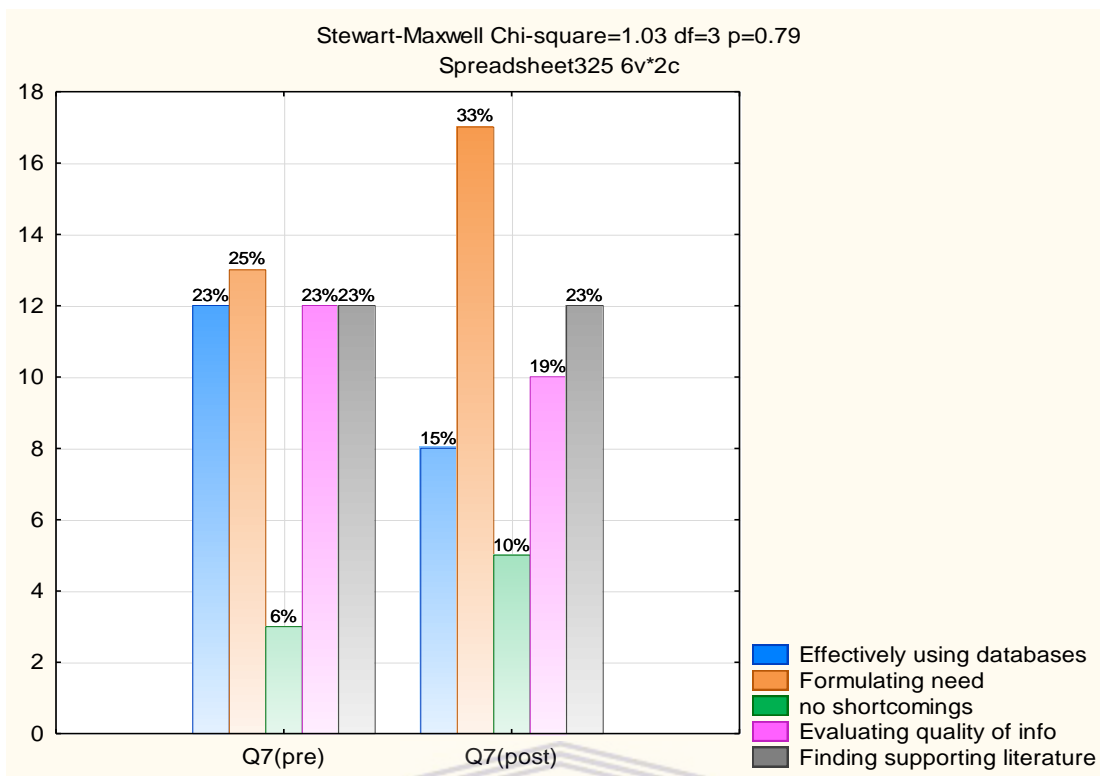


Figure 8 Challenges in finding information

A shortcoming of Question 7 was the omission of the “not sure” option to this question. Students were obligated to pick an answer. This is one of the disadvantages of closed questions (Neuman, 2006: 287).

In Question 8 students were asked to rank the usage of sources when searching for academic information. See Table four for the rankings in the pre- and post-information literacy questionnaire.

Table 4 Ranking of information sources usage

Resources	Pre-information literacy questionnaire ranking	Post-information literacy questionnaire ranking	Ranking
Google	27%	29%	1 st
Academic databases	19%	19%	2 nd
Library catalogue	18%	18%	3 rd
Google Scholar	18%	17%	4 th
Reference books	18%	17%	4 th

The response for Question 8 was varied. Some respondents only marked Google, which could mean that they only use Google to start their search for academic information. These results were included in the statistics. Some respondents ranked two or three information sources which were also included in the statistics. Where students indicated more than one information source but did not rank them, the researcher disqualified the responses. The norm varied for the different information resources that were ranked.

Although the statistics show that there was no significant change in the pre- and post-information literacy scoring, there was a drop from 15% to 0% of students not sure how to start their search.

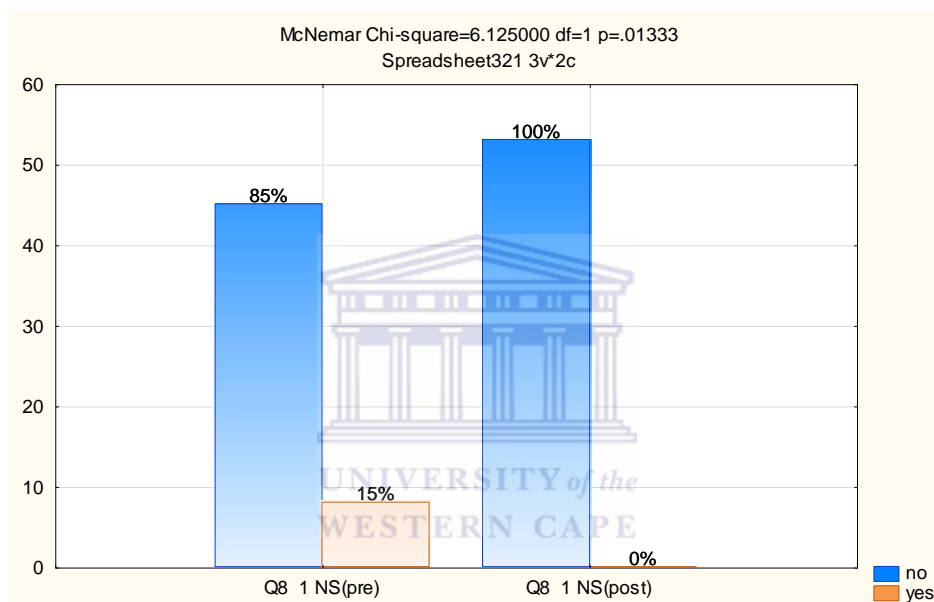


Figure 9 Where to start looking for academic information: Not sure

Question 11 asked respondents to rate their confidence in seeking scholarly information from the library website, from the internet and from the librarian. There was no significant change in the scoring from the pre- to the post- information literacy questionnaire. The scores show that students were confident in seeking scholarly information from the library website, internet and from the librarian. See Appendix 9 for the graphs.

Question 12 asked respondents to rank their confidence in the following skills:

- formulating questions based on information need;
- identifying potential sources of information;
- developing successful search strategies;

- evaluating information;
- organising information for practical application;
- integrating new information into an existing body of knowledge; and
- using information in critical thinking and problem solving.

There were no significant changes between the pre-information literacy and the post-information literacy scores. In general, students were confident in above mentioned skills. A problem that arose was that some participants either did not see question 12 on the last page or did not wish to answer the eight Likert scale questions. The results of this question were calculated according to the sum of the answered questions and not of the sum of the total participants. See Appendix 10 for the graphs.

4.2.4 Open-ended questions from the post-information literacy questionnaire

Questions 9 and 10 in the pre-information literacy questionnaire were changed in the post-questionnaire to two open-ended questions: Question 9 asked what the respondents found useful about the information literacy intervention and Question 10 asked which areas they still required more help. The decision to change the questions was based on the majority of the students answering the questions about plagiarism in the pre-information literacy questionnaire correctly. In Table five the responses of the participants have been grouped into categories with samples of responses recorded verbatim.

Table 5 Question 9 of the post-information literacy questionnaire

Question 9: What was useful about the information literacy training that you received?	
Category	Samples of responses
Active learning	<ul style="list-style-type: none"> • The in-class live-presentation • Each university works differently. It was valuable to "play" on the University of Stellenbosch's system • Enable practice of searching for information
Search strategy	<ul style="list-style-type: none"> • Getting a point to start from • It taught me where to start looking • Ability to search somewhat efficiently • Gave me a baseline on how to search • Highlight importance to formulating question before searching for source! • Made me aware of searching techniques • Insight on how to search for information and confidence on doing this

	<ul style="list-style-type: none"> • Instilled confidence about searches • Helped to narrow down the vast amount of information • How to get data from different sources • It helped me to understand how to find information
Databases	<ul style="list-style-type: none"> • Showed me which databases to use for academic writing and how their engines work • Taking us through the different databases • Exposure to academic databases • I learned to search on databases • Introduction to SUN and access to databases • It allow me to effectively use databases & journals • How to use the different databases – as they are confusing • Where to find the necessary databases
Keywords	<ul style="list-style-type: none"> • How to construct keywords • Combine keywords • Information concepts/keywords for research
Evaluation of sources found	<ul style="list-style-type: none"> • Ability to find credible articles • Being critical about the use of information (selecting most relevant). • It gave insights on how to rank the information when searching for academic information
Negative comment	<ul style="list-style-type: none"> • Good training, but too late at night considering it's one class for a 15% group project. Would have preferred a better time slot, in a room big enough to allow everyone to work on a computer

Question 9 asked students what they found useful about the information literacy intervention. Responses to this question varied. The most frequently mentioned responses were about searching and databases. Twenty-two (22) out of the 53 students mentioned; to search, searching for, start looking, how to find, filter, and acquire information. They found being shown where and how to search useful. Eleven (11) out of the 53 students mentioned databases; being shown, exposed to, how to search, access to, effectively use of, insight to academic databases. Students found it useful being instructed on databases. Other responses included formulating and using keywords, the amount of academic information available to them and the library website.

Question 10 asked students in which areas they require more help. Nine (9) of the 53 students mentioned that they needed more intervention in how to search. Six (6) of the 53 need more help in formulating their keywords for find information. Other responses include referencing, evaluating information and databases.

Table 6 Question 10 of the post-information literacy questionnaire

Question 10: In which areas do you still require help?	
Category	Samples of responses
Databases	<ul style="list-style-type: none"> • They should use the Google search engine within their databases • Guidance on databases – sources • Knowing which databases has relevant info
Referencing	<ul style="list-style-type: none"> • Referencing material and how to use the reference material • Referencing is hard. Remember how to reference different sources. Reference within a reference becomes very tricky of me.
Evaluation of sources found	<ul style="list-style-type: none"> • Finding the right quality material for a topic • Evaluating the quality of information found • Information ranking
Generating keywords	<ul style="list-style-type: none"> • Keyword searchers – finding the most appropriate sources • Focussing searchers. I have searched on keywords but don't find what I look for • The use of description & statements to get information • Selecting keywords
Boolean logic	<ul style="list-style-type: none"> • Keyword combinations • Combining keywords

4.3 Interviews

Interviews were conducted with the information literacy facilitator and one of the research methodology lecturers. What follows is the result of questions posed to the interviewees. The aspects focused on in the interviews were: collaboration, information literacy education at USB, students' level of information literacy, and individual questions. See interview questions and transcripts in Appendix 12 of the information literacy facilitator and Appendix 13 for the research methodology lecturer.

4.3.1 Lecturer's understanding of information literacy

Question to the research methodology lecturer: What is your understanding of information literacy?

He sees information literacy from a academic/student point of view in his teaching, research consultant and dissertation supervisory position. As business academic he sees what information students need and how they should use the information to do their research.

From the students' point of view he knows what is expected of an information literate student.

To me information literacy is the ability of the student to know what is information and where I can get it as soon as efficiently as possible. What are the sources to my disposal and how to access and extract data.

4.3.2 Collaboration

Question to the information literacy facilitator: How would you describe the collaboration between you and the business academics in terms of the information literacy education?

Question to the research methodology lecturer: How would you describe the information literacy education that USB provides?

The facilitator was positive about the collaboration that is taking place between the library and academic staff but more collaboration is needed. From the facilitator's response it is clear that currently limited collaboration is taking place as the facilitator develops and teaches the Information literacy intervention, develops the assignment and assesses the assignment. The facilitator was positive about the limited collaboration because, besides the MBA course, the only other course that has integrated information literacy is within the Law faculty at the Stellenbosch University.

The lecturer does not know of any other collaboration that is taking place between the library and the academic staff. He comments that academic staff should know about information literacy and the information literacy intervention that is given in order for them to reinforce what has been taught in the information literacy class via the assignments that students receive from academic staff. He expresses his concern about the limited amount of information students use to do their assignments.

4.3.3 Information literacy of MBA students

Question to the information literacy facilitator: Comment on the overall level of information literacy of graduate students?

Question to the research methodology lecturer: In your experience how would you describe the MBA students' information literacy?

Both the facilitator and lecturer find that the MBA students' information literacy is weak but it is improving. The facilitator comments that most of the MBA students come from an engineering or commerce background where they did not need to use the library extensively to do their undergraduate studies. For students in the Social Sciences and Humanities, academic work is directly linked to how many sources they find to write up their assignment or their research project. This links to what the lecturer commented about the limited sources that MBA students use in the presentation of their academic work.

I still find them fairly lazy, forgetful, just too busy but there is always something lacking. You get something from the student you find that the student did not use a lot of information to come to that point, they work on intuition and of what they know, remember and sometime just the class textbooks that they use but it's improving.
(*Research methodology lecturer*)

4.3.4 Information literacy education

Question to the information literacy facilitator: What would be your ideal in terms of the information literacy education for MBA students?

Question to the research methodology lecturer: What would be your ideal in teaching information literacy to MBA students?

The feedback on this question came from the interviewees' various viewpoints and experiences within the field. Information literacy should not just be discussed but implemented and followed through throughout the MBA course. The lecturer emphasised the communication with academic staff about the importance of information literacy for MBA students as future managers. The vision and plan for information literacy for the MBA course should be communicated to academic staff, in order for them to reinforce what has been taught during information literacy interventions, by putting what was learned into practice when assessing students' assignments. A barrier in getting academic staff on board to reinforce information literacy according to the lecturer is that the MBA students are taught by a large external academic staff.

The facilitator would like to see more continuous information literacy intervention. This is in agreement with the lecturers comment. She suggests an introductory lesson when the MBA course starts and this should be followed by more subject specific information literacy

classes when the students need them. She also suggests that information literacy should be offered in different forms such as Libguides and information literacy video clips and podcasts available on the e-learning, group based information literacy consultation, one-on-one consultation for post-assignment discussion, and extra training in tools such as Refworks.

Both the lecturer and facilitator commented on the MBA students as future managers in terms of information literacy:

Especially with MBA students because they are going to be managers, executives in firms, they must make decisions on well sourced information. (*Information literacy facilitator*)

We don't want to produce students that can pass MBA we want to produce managers that can go out and work with information in their everyday lives. (*Research methodology lecturer*)

4.3.5 Nature and objectives of information literacy training

Question to information literacy facilitator: Can you describe the nature of the information literacy training?

The objective of the information literacy intervention is to locate information, identify the different forms of information and to evaluate the quality of information. The objectives are to teach students the different forms of information and when to use the different forms and the different criteria of evaluating information.

Also one of my aims is to excite them about the wide variety of information available. I want them to can't wait to help themselves. I think most students don't even use this little bit of what is available for them to use and if they get excited about research about finding information, how to construct the whole literature search, the search strings and when they grip that then I'm sure that students say oh whow its fantastic to do research.

The information literacy intervention does not train or assess students' application of the information found. The facilitator agrees that this is one of the shortcomings of the assignment. The information literacy assignment focuses on students finding current, pertinent information related to the case study, but not applying that information to show that

the information was integrated into the students' knowledge base or that the information was used ethically.

4.3.6 Once-off training

Question to the research methodology lecturer: Do you think a once-off information literacy class is sufficient for MBA students?

The lecturer was asked if he thought a once-off information literacy session is sufficient for MBA students. His answer to this question was that the one information literacy class, very early in the MBA course, is not sufficient.

...by the time when they get themselves into the course perhaps its (information literacy intervention) already something of the past. They know that they have done it somewhere...

4.3.7 Assignment

Question to the information literacy facilitator: What are your views about the information literacy assignment?

The assignment is based on a topical case study and done in groups of six. It does happen that the assignment gets spread out amongst the group members. This has the negative effect that the student does not complete the entire assignment but only a part of it. The facilitator would prefer an individual assignment to test the application of their learning. By administering a pre-test, doing an individual assignment and administering a post-test the facilitator would have a better assessment of students' information literacy. This practice will result in enlarging the librarians' workload.

The facilitator finds it challenging to mark the assignments. She admits to being biased and that a better marking system is needed to assess assignments. She does not wish to alienate the student from the library and its resources by marking them down.

4.4 Re-assessment of the information literacy assignment

The assignment was developed by the information literacy facilitator. At the beginning of the year the researcher developed a points (mark) system to assess the assignment. The idea was to allocate a mark for each source that the students provide. See Appendix 13 for this assignment point system. The facilitator and the researcher conducted individual searches on the assignment topic to find the most appropriate sources for the assignment. They then sat down and assessed the assignment together using their own sources retrieved as a marking guide. This was a time consuming exercise and was completed with two or three intervals.

The researcher decided to design a rubric to: 1) structure the assessment process; 2) save time in assessing the assignments; and 3) compare the rubric scores with the allocated marks. Table seven shows the original assignment results and the rubric scoring of the same assignments.

Table 7 Comparison of the group assignment scores

Groups	Original assignment scoring	Rubric scoring	Difference
1	88%	72.50%	-15.5%
2	89%	85%	-4%
3	92%	85%	-7%
4	97%	95%	-2%
5	93%	82.50%	-10.5%
6	73%	77.50%	+4.5%
7	72%	57.50%	-14.5%
8	92%	90%	-2%
9	93%	92.50%	-0.5%
10	100%	92.50%	-7.5%

The re-assessment of the group assignment shows a decreased score for all the assignments except for Group 6 that improved marginally. The three largest score differences were -15.5% (Group 1), -14.5% (Group 7) and -10.5% (Group 5). The scores in Table eight show that 60% of the students were accomplished (a score of 2) in generating keywords, developing search strategy, finding books and newspaper articles. Seventy percent (70%) were proficient (a score of 1½) in using Google Scholar to find relevant

academic sources. The rubric scoring key is as follows: ½ Novice; 1 Developing; 1½ Proficient; and 2 Accomplished.

Table 8 Information literacy rubric scores

Groups	Define information need	Generate keywords	Develop search strategy	Journal articles	Books	Thesis	Google scholar	News paper	Motivation	Presentation
1	1	1	1	1.5	1.5	1.5	1.5	1.5	2	2
2	1	2	2	1	2	2	1.5	2	1.5	2
3	1.5	1	1	2	2	2	2	1.5	2	2
4	2	2	2	2	2	2	1.5	2	1.5	2
5	1.5	1.5	0.5	2	2	1.5	1.5	2	2	2
6	2	2	2	1	1.5	2	2	1.5	1	0.5
7	1	1	0	1.5	1.5	2	1.5	1.5	1.5	2
8	2	2	2	1.5	1.5	1.5	1.5	2	2	2
9	2	2	2	1.5	2	1.5	2	2	1.5	2
10	1.5	2	2	2	2	1.5	1.5	2	2	2

A comparison between the assignment results taken from the rubric for defining the information need and Question 7 in the pre- and post-information literacy questionnaire which asked what information literacy skills students found challenging shows that students found it more challenging to define their information need *after* having the information literacy intervention and completing the assignment. The questionnaire results show that the students found it more challenging to formulate their information need as the scores rose from 25% to 33%. See Figure 8. The rubric score shows that a third of the students were accomplished in defining their information need, a third were proficient, while another third were developing.

The original scores are tabulated in Table nine. It shows that:

- 90% of the students scored top marks in define information need, motivation and presentation;
- 70% of the students scored top marks in generating keywords; and
- 60% of the students scored top marks in developing a search strategy.

The scoring rubric allowed the researcher to assess the assignment with more defined detail. One of the benefits of the rubric is that it minimises bias.

Table 9 Original assignment scores

Groups	Define information need	Generate keywords	Develop search strategy	Journal articles	Books	Thesis	Google scholar	News paper	Motivation	Presentation
1	8/10	4/5	3/5	23/24	14/16	8/8	4/8	4/4	10/10	10/10
2	10/10	5/5	5/5	17/24	15/16	6/8	7/8	4/4	10/10	10/10
3	10/10	4/5	4/5	21/24	15/16	8/8	6/8	4/4	10/10	10/10
4	10/10	5/5	5/5	23/24	16/16	8/8	6/8	4/4	10/10	10/10
5	10/10	5/5	2/5	22/24	15/16	8/8	7/8	4/4	10/10	10/10
6	10/10	5/5	5/5	14/24	13/16	8/8	6/8	4/4	6/10	2/10
7	10/10	4/5	0/5	10/24	13/16	8/8	3/8	4/4	10/10	10/10
8	10/10	5/5	5/5	23/24	15/16	5/8	5/8	4/4	10/10	10/10
9	10/10	5/5	5/5	18/24	16/16	8/8	7/8	4/4	10/10	10/10
10	10/10	5/5	5/5	24/24	16/16	8/8	8/8	4/4	10/10	10/10

The validity and the reliability of the rubric was an important issue in the development and use of the rubric. Validity according to Moskal and Leydens (2000) refers to the 'process of accumulating evidence that supports the appropriateness of the inferences that are made of student responses for specified assessment uses'. Reliability refers to the consistency of assessment scores (Moskal & Leydens, 2000). One of the issues in developing the rubric was the applicability of the rubric for assessing the assignment. The rubric was independently tested by the supervisor by marking one of the assignments with the rubric. In so doing unclear criteria were corrected. In terms of reliability the researcher used intrarater reliability. This means the researcher marked the same assignment at different points in time using the rubric (Moskal & Leydens, 2000). Time is important when using the rubric to assess students' information literacy. Time needs to be spent in learning the rubrics and applying the rubric (Oakleaf, 2008: 247).

4.5 Conclusion

There was no statistically significant change between the pre- and post-questionnaire in the MBA students' information literacy. The pre-information literacy questionnaire took place during the first MBA contact session and the post-information literacy questionnaire took place during the second contact week after completion of the information literacy assignment. The time between the two questionnaires was about two months. The questionnaire results show that the students scored a median of five out of seven on the

knowledge questions. This indicates that the students' information literacy score for the knowledge questions averaged 71%.

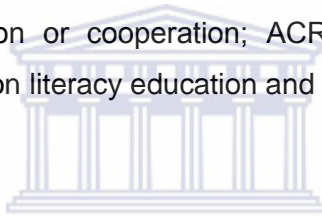
In general, the research methodology lecturer and the information literacy facilitator find the MBA students' information literacy weak but improving. This seems to contradict the students' high knowledge scores and the assessment results. This contradiction is explored in Chapter five. The lecturer and facilitator agree that the once-off information literacy intervention is insufficient and too early in the MBA course time-table. The research methodology lecturer asserts that the information literacy intervention needs to be advocated amongst business academics and reinforced by them. Both the lecturer and the facilitator find the information literacy education of MBA students should be more imbedded within the course.



CHAPTER 5: Discussion of the results

5.1 Introduction

The research problem of this study is an investigation of the effectiveness of the information literacy education which MBA students receive at the University of Stellenbosch Business School. The research questions and sub-questions guiding this investigation ask: 1) How effective is the information literacy intervention? 2) To what extent does the course design support ACRL standards? 3) Which ACRL standards are used in the intervention and the group assignment and to what extent are they being addressed? 4) Is the once-off information literacy intervention enough? 5) What are the challenges and opportunities are for greater information literacy integration? 6) Which particular interventions can be developed to strengthen the information literacy of MBA students? In this chapter, the researcher, using these guiding questions, discusses the findings from Chapter four under four main headings: collaboration or cooperation; ACRL standards; graduate students' information literacy and information literacy education and assessment.



5.2 Collaboration or cooperation?

The interview with the information literacy facilitator and research methodology lecturer revealed that little collaboration is currently taking place between library and business academics. The facilitator designs the case study of the information literacy group assignment and facilitates the information literacy intervention. The lecturer is the library's only link with business academics. He inherited this link with the library from the previous lecturer who was very involved in designing the information literacy assignment and participated in the assessment of the assignments. This is currently not the case. The facilitator designs the case study and presents it to the lecturer for endorsement. This is the extent of his cooperation. His role in information literacy can be better described as cooperative rather than collaborative. Some of the characteristics of cooperation as described by Montiel-Overall (2005) is "more commitment than coordination", "minimal amount of effort on the part of one partner" and "does not necessarily imply shared planning". Montiel-Overall (2005) states that collaboration is "a trusting, working relationship between two or more equal participants involved in shared thinking, shared planning and

shared creation of integrated instruction". The information literacy facilitator should work towards a more collaborative relationship with the research methodology lecturer. Key business academics members should be identified by the information literacy facilitator in order to invite and encourage collaboration.

One of the barriers for collaboration that was revealed during the interviews was that business academics is not aware of the importance of information literacy. Currently the information literacy facilitator sees the information literacy education at USB as disjointed from the rest of the research methodology course "I think it is still a little bit fragmented". By fragmented she refers to the fact that information literacy is not fully integrated into the research methodology course. It forms a small part of the course and is not integrated in any of the other parts of the course. Business academics has not come around to the idea that the library is an active partner in the successful outcome of learning and research. Detlor et al. (2009: 578) states in their findings that "teaching faculty must recognize the value of students learning these skills, and the ability and willingness of librarians to facilitate the learning process". One of the strategic directions of the University of Stellenbosch Library and Information Service 2010-2015 is to partner with academics to develop information literacy from the current generic and related information literacy towards an integrated information literacy education. In this collaborative partnership the library contributes to the Stellenbosch University graduate profile which alludes to the characteristics of an information literate person (see 2.3.3). The graduate attributes include being equipped for professional life, lifelong learning, critical citizenship and, higher level skills.

The information literacy education of MBA students at USB is described as integrated. According to Wang (2010: 59), integrated information literacy is characterised by its incorporation into the academic curriculum with the collaboration between the library and academics during curriculum design, intervention or assessment. As there is a lack of collaboration and limited time spent on information literacy, the quality of information literacy integration is in questionable. The MBA students' information literacy pre- and post-questionnaire results show that there was no overall significant change in the scoring between the two questionnaire results. This may call into question the effectiveness of the once-off information literacy intervention. The Long and Shrikhande (2007) study shows that on-going information literacy instruction coupled with assessment lead to better research skills by students. Davis, Lundstrom and Martin (2011) signal in their study that, multiple

interventions are the preferred route in credit-bearing information literacy courses because it provides more in-depth learning. The once-off information literacy intervention allows the information literacy facilitator limited time to deal with all the ACRL Standards. The information literacy facilitator is forced to deal with the Standards most closely related to the library services and resources. On-going information literacy intervention coupled with student assignments would help students to put theory into practice by practicing information literacy skills.

The lack of collaboration between the library, business academics and administrators has the result that at USB:

1) The information literacy intervention is scheduled either late afternoon or early evening during the first contact week. Both the lecturer and facilitator mentioned that the intervention is too early in the course. The facilitator suggests the first contact be in the form of a general introduction to the library, its website and resources.

2) The intervention is a once-off approximately 90 minute hands-on session. Both agree that a once-off intervention is insufficient for Masters students and multiple interventions is necessary to successfully inculcate information literacy.

3) There is no input from business academics in the content or development and assessment of the information literacy education. Without the academics actively busy with information literacy via the information literacy intervention process they would not carry through the objectives of information literacy to the marking of students course assignments.

As the research methodology lecturer mentioned:

faculty should reinforce what has been taught in each assignment students receive. Students should be tested on the depth of information that they acquire for their assignment and be marked accordingly. This would reinforce what was taught during information literacy training.

4) Facilities available for the information literacy intervention, such as the computer laboratory with a computer for every student for the hands-on training, are not met. Computer and internet capacity for the smooth presentation and practice of information searches and other aspects of information literacy are essential.

The cornerstone of information literacy education in higher education should be the collaboration mainly between the library, academics and administrators. The level of

collaboration has an influence on the quality of information literacy in higher education. Institutional commitment, backed by policy is a sound basis of information literacy collaboration. Studies by McInnis Bowers (2009), Simon (2009), Atwong and Heichman Taylor (2008), Wang (2010), show how important collaboration is for successful information literacy delivery and student learning outcome.

5.3 ACRL standards

The objectives of the information literacy intervention for MBA students at USB are mainly to introduce the students to the library website, its resources and the library services. According to the facilitator, 'the objective of the information literacy intervention is to locate information, identify the different forms of information and to evaluate the quality of information'. This is achieved by posing an easy research question where the class participates in defining the information need, determining keywords, developing a search strategy and evaluating the sources found. The observation of the intervention shows that the ACRL Standard 2 was mostly used. This standard reads: the information literate student accesses the needed information effectively and efficiently. According to Stanger (2009: 2) it is with this standard that academic librarians can contribute the most to information literacy.

The information literacy assignment had the same objectives in order to reinforce what students had learned during the information literacy intervention. They had to define their information need which is Standard 1: The information literate student determines the nature and extent of the information needed. They had to determine the keywords and develop and implement their search strategies which is Standard 2: The information literate student accesses needed information effectively and efficiently. Davidson, McMillen and Maughan (2002) conducted a self-study of their instructional practice at the Reference and Instructional Department at Oregon State University using the ACRL standards. They found that competencies of ACRL standards 1 and 2 are given priority especially in the once-off instruction. The competencies that have top priority are:

1.1.e. Identifies key concepts and terms that describe the information need.

2.3.c. Uses specialized online or in person services available at the institution to retrieve information needed.

2.5.1. Selects among various technologies the most appropriate one for the task of extracting the needed information

2.1.e. Investigates the scope, content and organization of information retrieval systems.

2.1.d. Selects efficient and effective approaches for accessing the information needed for the investigative method or information retrieval system (Davidson, McMillen & Maughan 2002: 102).

One of the major drawbacks of the assignment as indicated by the information literacy facilitator was that students did not have to incorporate selected information fully into their knowledge base but only had to cut and past the relevant titles and abstracts of sources found into their assignment and provide a short motivation why they thought the source was relevant. The other Standards were touched upon but not as comprehensively as Standard 2.

The challenge for information literacy education at USB is that because of time constraints there is not sufficient time to effectively teach all five the information literacy standards. The pre-information literacy questionnaire shows that 60% of students had not used academic databases before. The challenge is to teach Masters' students to use the federated search option, the databases applicable to their studies and how to develop a search strategy to find information effectively and efficiently within time constraints. With the current time limitations, the information literacy intervention should concentrate on the first two Standards as students have limited access and experience in using academic databases. The other standards can be communicated to students by developing comprehensive LibGuides and actively advertising their content and usefulness to students. LibGuides is a platform provided by Springshare to create research guides and to share knowledge. LibGuides is only one opportunity to teach information literacy standard to students. These and other opportunities should be further investigated.

Teaching all the information literacy standards within the field of Economic and Management Sciences in a once-off session can prove to be difficult or impossible. Ensuring students practise and use information seeking skills can also be challenging.

5.4 Graduate students and information literacy

What did the pre- and post- information literacy questionnaire reveal? The first question of the pre- and post-questionnaire asked students to mark all the databases they have used. It is interesting to note that in the pre-questionnaire the response for not using any databases at all was 60% and this dropped to 8% in the post-questionnaire.

The information literacy knowledge score shows a higher than expected median of 5 out of 7 knowledge questions. There was no significant change between the pre- and post-information literacy questionnaire knowledge score. It seems that students have the theoretical knowledge of developing a search strategy, identifying information sources and understanding plagiarism. But, do they apply it in their assignments? The research methodology lecturer's comment is that the information literacy of MBA students is weak. In his experience as lecturer and evaluator of dissertations proposals he found that students' does not base their academic work on theories and academic literature. They go by what they know and what is available to them such as their textbooks. They do not take the time or have the time to search for more information. This behaviour was reiterated by Hillyer, Parker and Gilbert (2011: 228) in their study at the University of Nebraska at Omaha "students tended to use resources that are familiar and look for quick solutions to meet deadlines and responsibilities". Another study by Griffiths and Brophy (2002) done at Manchester Metropolitan University and Lancaster University reported that 45% of students use Google as the first search option. This research confirm the study of Griffiths and Brophy (2002) that students use Google as their first port of call when searching for academic material.

The rubric analyses of the information literacy group assignment indicate that 60% of students were accomplished in generating keywords and developing a search strategy. Question 7 of the information literacy questionnaire asked students what skills they found most challenging. One of the choices of this Likert scale question was "effectively using databases". The score for this Likert question dropped from 25% to 15% in the post-questionnaire. Question 8 which asked students to rank their usage of information resources when starting a scholarly search show that the scores for students not sure where to start their search dropped to 0% from the pre-questionnaire score of 15%. This shows that the information literacy intervention worked to some extent. There was also a marked increase in the use of the databases EBSCOhost and SACat from pre- to post-questionnaire. These two databases were demonstrated during the information literacy

intervention and was listed as sources to search for in the information literacy group assignment. This explains the increase in usage of these two databases. These results show that the information literacy intervention had an effect on students' information literacy.

Where the ranking of information sources was concerned, students ranked Google and academic databases as the first two sources when starting an academic search. This result is in agreement with the findings of Hillyer, Parker and Gilbert (2011) in their study of the information literacy skills of new students.

The above mentioned findings show that the information literacy intervention and group assignment succeeded in making students aware of some the library resources available to them, how to identify keywords and develop their search strategy. These results seem to contradict the research methodology lecturer's and information literacy facilitator's assessment of the MBA students' which they characterize as weak. As research methodology lecturer and research consultant for masters and PHD students, the lecturer has a good overview of students' information literacy. The information literacy facilitator gleans her perception of the quality of students' information literacy on the questions asked during the intervention as well as by the one-on-one interventions. The researcher found that there could be a disconnection between what students know and what they practise in terms of information literacy.

The challenge is to bring the importance of information literacy across to MBA students for their studies and as future managers. Students should be made aware of the information literacy process. Kuhlthau's Information Search Process model is ideal because it defines the seven stages of information literacy and takes into account the feelings individuals experience whilst undertaking research. The most difficult stages, according to Kuhlthau (2007: 19) is the *Exploration stage* where students search for information around their topic to find some focus. Kuhlthau established that students found this stage of the Information Search Process difficult because of the emotional upheaval. Kuhlthau (1999: 6) defined this emotional difficulty as the uncertainty principle: "a cognitive state that commonly causes affective symptoms of anxiety and lack of confidence". A perplexing result from this study was that of the Likert scale questions 7 and 12. The post-information literacy questionnaire result for Question 7 on formulating the information need and selecting appropriate key concepts shows that more students found this challenging after the intervention and the assignment. Although not statistically significant, the pre-questionnaire showed a score of 25% that rose to 33% in the post-questionnaire for Question 7. The results from Question

12 related to “formulating questions based on information needed” contradict that of Question 7 in the sense that students indicated that their confidence had increased in formulating questions based on their information need. This relates to Kuhlthau’s (Kuhlthau, Maniotes & Caspari, 2007: 19) *Exploration stage*.

An important aspect of Kuhlthau’s ISP is her Zone of Intervention as discussed in Chapter one. This is a critical period in the students’ research process where they need help. Question 7 results show that students found it easier to effectively use databases after the intervention. The post-questionnaire score dropped to 15% from the pre-questionnaire score of 23%. Apart from finding it less challenging to effectively use databases this study shows that significantly more students used databases (Question 8) after the intervention and that they were more certain of where to start their academic information search. From these results it could be deduced that the information literacy intervention succeeded in introducing students to some of the information sources that are critical in the information search process and that the intervention for the information literacy assignment fell within Kuhlthau’s the Zone of Intervention.

As the contact sessions of modular students which forms the bulk of MBA’s, are intense, finding more time for information literacy will be difficult. Another challenge for information literacy intervention is that graduate students come to study with different levels of information skills from different educational environments. How can we measure these skills before they start their MBA studies so that the information literacy is more effective? Campbell (2008: 22) asserts that the information literacy intervention will become just-in-time as students identify their information need. Some off campus opportunities to assist in just-in-time information literacy services could be available via LibGuides, Ask-a-Librarian service, personal training via phone, e-mail, Skype. On campus opportunities would be individual or group training by librarians.

5.5 Information literacy education and assessment

This section discusses the findings related to the type of information literacy education the MBA students received and the assessment of the assignment.

5.5.1 Information literacy education

Currently, the assessment of the information literacy intervention is based on the assignment. The information literacy facilitator uses a case study to deliver the instruction with strong reference to the assignment that students will later undertake. Is this the right way to go? A study conducted by Davidson, McMillen and Maughan (2002: 101) at Oregon State University assessed their information literacy instruction by administering a survey of their library instructors. The findings indicated that the library instructors tended to 'teach to assignments'; several ACRL competencies were highlighted as priorities (See 5.3): identifying key concepts, using various search systems, identifying the scope, content and organisation of information retrieval systems, identifying keywords, synonyms and related terms, construct a search strategy, using specialised online or in person services, identifies the value and differences of potential resources in a variety of formats, and explores general information sources to increase familiarity of the topic. This is what is happening at USB. Should there be less emphasis on the assignment and more time and detail spent on search strategy and the Information Search Process? Are the different search options available on the library website confusing student? How should we address this? These and more questions should be considered when assessing the effectiveness of the once-off information literacy intervention. There was no significant change between the pre- and post-information literacy questionnaire. The results of the questionnaire and group assignment can be used to re-assess the content of the information literacy intervention.

In the past the only information literacy assessment was a five question Likert scale questionnaire with an opportunity for students to comment on the information literacy intervention, a kind of workshop evaluation form. The five questions were divided between the information literacy facilitators' ability to impart library and information literacy related information and about the general content of the information literacy intervention. More in-depth information literacy evaluation should be done in order to assess incoming students' information literacy and using this information to improve the effectiveness of the information literacy intervention and to measure the outcome of the intervention. Oakleaf (2009: 80) asserts 'that librarians need a comprehensive information literacy assessment plan which:

- comprises instructional program-level and outcome-level components, that summarize the purpose of information literacy assessment, emphasize the theoretical basis of their assessment efforts;

- articulates specific information literacy goals and outcomes, describe the major assessment methods and tools used to capture evidence of student learning; and
- reports assessment results, and highlights improvement made as a consequence of learning assessment’.

The information literacy facilitator does not have a comprehensive assessment plan. She explains and elaborates on the information literacy assignment and outcomes to the students but does not suggest how they will be assessed. See Appendix 6.

Continuous evaluation of the information literacy intervention as a whole is important to: 1) measure if the library’s information literacy objectives against the information literacy needs of incoming students are met; 2) measure the effectiveness of information literacy intervention; 3) adjust the information literacy intervention to students information needs 4) show how information literacy can affect the outcome of students studies.

5.5.2 Information literacy intervention

The information literacy intervention is limited to one formal session at the start of the MBA course. Both the information literacy facilitator and the research methodology lecturer found the timing of this session poor. The facilitator suggested an introductory lesson about the library and the library resources at the beginning of the MBA course. This is then later followed by subject related information literacy intervention. The research methodology lecturer remarked that when students need the information literacy skills during their study they have already forgotten about the training they received in the first week of the MBA course. The timing of the information literacy intervention is important. The intervention should be given when the students need it. Information literacy intervention will become just-in-time as student identify their information need (Campbell, 2008: 22). To get the timing right a holistic view should be taken of the MBA course.

Kuhlthau’s Information Search Process is grounded in the constructivist learning theory. This theory is based on the view that learning takes place in an environment of problem solving, active learning and critical thinking. The information literacy facilitator uses a research question to demonstrate how to go about doing research and using the library website to search for information. The class participates in identifying the information need, identifying keyword and synonyms, and then doing hands-on searches for information. By

solving a research problem during the intervention students and actively participating in searching, they participate in constructivist learning.

5.5.3 Assessment of students' information literacy

During the interview the information literacy facilitator criticised the use of the group assignment. The objective of the assignment is to get students started to use the library resources and to develop their research skills. The average size of the groups for the assignment was six students per group. How the group assignment was completed between group members with them often located in different parts of South Africa and even further afield is of concern to the facilitator. She had concerns that about the possibility that the assignment was divided between group members. This means that a group member only did one part of the assignment. This could account for the 8% students who indicated that they did not use any of the databases in the post-information literacy questionnaire. The decision to base the assessment on a group assignment came from the fact that the information literacy facilitator and the previous research methodology lecturer would not be able to assess approximately 50 individual information literacy assignments. The assessment of information literacy assignments is a time consuming task. Currently the information literacy assignments are assessed by the facilitator and the researcher. It is the researcher's expectation that the rubric should help to produce more accurate and consistent assessment.

More time and research should be taken by the information literacy facilitator to investigate other assessment possibilities. How can we assess students with limited time and resources? Will it help to make the groups smaller for the group assignment? Can the assignment content be divided and taught at different intervals by students? This will help to stagger the assessment process and make it more manageable for the information facilitator to administer individual assignments. This could also benefit students as they concentrate and work on particular aspects of information literacy individually. These are aspects of the assessments that should be examined.

During the interview the information literacy facilitator admits to being biased towards the students when allocating marks to the assignment. Her reason for this is that she did not want to alienate students from the library and the use of the library resources. As already mentioned above and proven by this study students start their research with Google even

after being introduced to the library resources. The question is how to bring the library into students' personal domain.

A limitation of this study is that the anonymous pre- and post-information literacy intervention and the group assignment could not be linked back to individual students' information literacy learning. The pre- and post- information literacy questionnaire was kept brief as not to take too much time away from information literacy instruction. The limitation of the brief questionnaire is that it could not fully explore the information literacy of students. Although the closed questions made it easier and quicker for students to answer they may have forced students' to give answers they would not have made or did not know (Neuman, 2006: 287). These could have been some of the reasons why the questionnaire results show a minimal change between the pre- and post-questionnaire scores.

5.6 Conclusion

The findings of this study show that information literacy education at USB is a library issue. There is limited collaboration taking place between the library and business academics. This leads to a weakened integration of information literacy into the research methodology course. This weakness of the information literacy education is reflected in: 1) inadequate time for the information literacy intervention; 2) a concentration on the first two ACRL Standards; 3) limited opportunities to assess students' information literacy; and 4) limitations to develop a well-rounded information literacy programme.

Chapter 6: Summary, Recommendations and Conclusions

6.1 Introduction

This chapter presents a summary of the major findings of this research presented in Chapter five. It concludes with the challenges and opportunities for information literacy education at USB and presents recommendations.

6.2 Overview of the structure of the research

Chapter one deals with the background and motivation for this evaluation research of the information literacy education of MBA students at USB. This study is the first attempt to evaluate the information literacy education of MBA students at USB which uses the ACRL competency standards for higher education and Kuhlthau's *Information Search Process* as framework. Some of the major concepts in this study are discussed such as information literacy and business education, information literacy at University of Stellenbosch, learning theories and the ACRL standards. A short description of the research problem, research design and method are provided. Chapter two discusses the literature available in various areas of information literacy in terms of its definition, its history in higher education in general and in South Africa, information literacy collaboration, information literacy educational approaches, business information literacy and graduate information seeking behaviour. Furthermore, the literature review deals with aspects of information literacy assessment and evaluation. Chapter three conveys the research design and methodology used to conduct the study. The purpose of this evaluation research is to conduct a systematic assessment of the information literacy intervention, its outcome, and its effectiveness and to discuss possible improvements. The chapter describes the mixed method approach that incorporates qualitative and quantitative data. Chapter four presents the results of the data collected which incorporates a pre- and post-information literacy questionnaire, interviews with the information literacy facilitator and the research methodology lecturer and the rubric assessment of students' group assignments. In Chapter five the results are discussed in relation to the research questions. Chapter six presents a summary of the research, the conclusion and lists some challenges and opportunities for the information literacy education programme at USB, some recommendations as well as suggestions for future research.

6.3 Use of the ACRL Standards in information literacy education

Question one of the research questions asks to what extent the information literacy intervention design supports the ACRL standards? A sub-question asks which of the ACRL standards are covered in the information literacy intervention and to what extent they are being covered?

The information literacy intervention and the group assignment generally focused on the first two ACRL Standards with the most emphasis on Standard 2. One of the main objectives of the information literacy education is to introduce students to the library services and electronic resources. In the face-to-face session, the facilitator solves a research question as is required in the group assignment. During the information literacy intervention students participate in determining the information need, identifying keywords and synonyms and the facilitator demonstrates followed by students participating in searching for information. In the group assignment, students show the results of their search and motivate why they choose a particular source. This problem solving practice relates to the constructivist theory of learning.

Other standards mentioned briefly were 3.2 and 5.2(f). Standard 3.2, on the evaluation of information, was touched on by relating to students what a peer reviewed article is and how to select them on the library databases. Another standard that was briefly mentioned was Standard 5.2(f) which incorporated plagiarism. The pre-questionnaire included two multiple choice questions on plagiarism that a high percentage of students answered correctly.

Is the intervention that MBA students receive information literacy or bibliographic instruction? According to Saunders (2010: 8) bibliographic instruction is mainly focused on skills-based instruction on finding information where the instruction takes the form of a lecture. The information literacy intervention, on the other hand, has a wider range that incorporates more aspects of the research process. It uses active learning methods to teach students to efficiently search for information and effectively use information critically, ethically and legally. Although the intervention at USB does not fully support all the ACRL standards, it does focus on identifying the information need, developing keywords, developing a search strategy, evaluating literature and plagiarism within an active learning environment. A 90-minute once-off information literacy session is insufficient to accomplish the overall objectives of the ACRL Standards.

6.4 Effectiveness of the information literacy intervention

Question two asks how effective is the information literacy education? The sub-question asks is the once-off, 90 minute information literacy course sufficient? For assessing this question the researcher focuses on the information literacy questionnaire responses, interviews and group assignments.

6.4.1 Pre- and post-information literacy questionnaire

There was a marked increase in the use of the databases EBSCOhost and SACat between the pre- and post-information literacy questionnaire. In the pre-questionnaire 60% of students indicated that they had not used any of the academic databases before. In the post-questionnaire only 8% did not use academic databases. Although not statistically significant, the scores for students finding it challenging to use databases effectively dropped from 23% to 15% in the post-questionnaire. Responses to the open-ended question, Question 9 in the post-questionnaire indicated that 11 of the 53 students found it useful to be exposed to the academic databases. These results indicate that the information literacy intervention was effective in introducing students to some of the electronic resources available to them for their academic studies. This result is further underscored by the 22 respondents in the post-questionnaire Question 9 who found being shown how to search for academic information useful.

In Question 10 of the post-questionnaire students were asked in which areas they still need more help. Although they found being shown how to search the academic databases useful in the previous question, this still seems to be an area where they need more help. Twelve (12) of the 53 respondents mentioned searching for information as an area they still need help in. A total of 30 out of the 53 respondents responded to this question. This result shows that 56% of the respondents found that they need more help in a variety of areas within information literacy. From the responses to Question 10 it is clear that the once-off information literacy intervention was insufficient to satisfy students' information searching.

6.4.2 Information literacy group assignment

The student scores were high in their information literacy group assignments. There was no significant difference in the original grading of the assignment and the rubric scores. The

assignment was a replica of the information literacy intervention and could explain the scores. The information literacy facilitator admitted to being biased towards students as she did not want to alienate them from the library and its resources. Without the triangulation of data from the questionnaire, especially the knowledge question responses and the open-ended question responses in the post-information literacy questionnaire, the study would not have been able to show that the intervention made a difference from the assignment results alone.

6.5 Evaluation of the information literacy education programme

This study attempted to evaluate the information literacy education programme at USB. Using process evaluation, it provides a picture of what is going on in the information literacy education programme. The formative aspect of the evaluation looks at how the programme can be improved. The value of this study is that it highlights the challenges that the information literacy facilitator faces in her academic environment. It gives a brief view of the students' information literacy levels which is important in evaluating the information literacy education programme. This study could be a starting point for further evaluation of the information literacy education and assessment practices at USB. The results of the study could be used to promote information literacy with academics.

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6.6 The challenges and opportunities for greater information literacy education

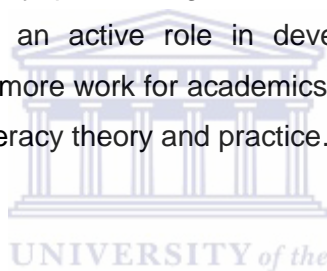
The third question of this study asks what are the opportunities and challenges for greater integration of information literacy within the MBA course, with a sub-question, what interventions can be developed to strengthen the information literacy of MBA students?

6.6.1 Challenges for greater integration of information literacy education

The biggest challenge for information literacy education at USB is the fostering of collaborative relationships with business academics and administrators. Collaboration as shown in the literature review by Wang (2010), Bhavnagri and Bielat (2005), McInnis Bowers

et al. (2009) is key to successful information literacy and student success. Data from the interviews indicate that no collaboration is taking place. The information literacy facilitator currently has the cooperation of one academic member. This is not enough to influence greater integration of information literacy in order to effectively teach all the ACRL standards to MBA students.

Business academics has a limited view of information literacy and this affects the collaborative relationship. Both the interviewees indicated that business academics either do not know what information literacy is or has a limited view of information literacy. Business academics see information literacy within the library domain and they do not see the information literacy facilitators as equal partners in student learning. It is clear that business academics should be informed of the importance of information literacy for student learning and academic outcomes. One of the major tasks of the library staff is to advocate information literacy and create information literacy collaborative relationships. This is not an easy task as it involves not only persuading academics to accept the importance of information literacy but to play an active role in developing, teaching and assessing information literacy. This means more work for academics and library staff in terms of taking time to learn about information literacy theory and practice. This is a huge commitment.



6.6.2 The opportunities for greater integration of information literacy education

An opportunity for greater integration of information literacy could be to change the cooperative relationship between the research methodology lecturer and information literacy facilitator to a collaborative relationship. This could be the start of a partnership where the exchange of knowledge and skills could benefit the growth of integrated information literacy.

The open-ended question, Question 10 of the post-information literacy questionnaire, reveals that 31 of the 53 respondents felt that they needed more help after the intervention. The areas they felt they needed more help in were referencing, search strategy, generating keywords and so on. If the pre- and post-information literacy questionnaire could identify the students who comment on Question 10, library staff could approach them in various ways to help them with the difficulties they experience.

Market the library staff, services and resources to students and business academics so that they seem approachable. The library staff needs to be more active and visible within the academic community in order to foster collaborative relationships.

6.7 Recommendations

There are eleven recommendations from this study:

- 1) Re-evaluate the structure and content of the once-off information literacy intervention in order to provide high impact information literacy interventions.
- 2) Investigate other student information literacy assessment practices. Find a form of assessment that can be administered individually and graded easily.
- 3) There should be continuous information literacy evaluation. By linking the information literacy interventions with student assessments the information literacy facilitator can adjust to changing information literacy trends.
- 4) Investigate other forms of information literacy interventions. The library and its resources should be as familiar to the student as their textbook. Interventions such as LibGuides and Ask-a-Librarian should be well developed, well designed and well marketed.
- 5) Market the library website, its resources, services and information literacy to students via e-mail, one-on-one information literacy instruction, podcasts, Ask-a-Librarian, LibGuides and so on. The library should encourage more opportunities for one-on-one and group information literacy interventions for when students need it most.
- 6) The library should start its information literacy collaborative efforts by advocating information literacy to those business academics who use the library and its resources often. This should be a well thought through strategy in terms of how to inform academic staff about information literacy, how to interest them in the collaborative cause, how to

develop the collaborative relationship and so on.

- 7) Develop an information literacy plan for once-off and multiple sessions.
- 8) Acquire more intervention time to fully integrate information literacy into the MBA research methodology course.
- 9) Acquire more resources to be able to support effective information literacy interventions.
- 10) Encourage students to use and practice information literacy skills.
- 11) Provide efficient and ample computer facilities to conduct hands-on information literacy interventions within a computer laboratory for a class and within the library on a one-on-one basis.

6.8 Conclusion

The information literacy education at USB has its limitations. This study shows that the once-off information literacy intervention was insufficient to generate significant change in student learning and information literacy skills. Although the students had high scores in the group assignment, the results of the assessment can only give a general view of students' information literacy and not an individual view. The information literacy education at USB does not fully support all the ACRL Standards. Collaborative relationships are needed with business academics and administrators to bring about changes in the quality of information literacy at USB.

More research is needed in the evaluation of information literacy education as a whole in terms of programme content, information literacy approaches, student learning and assessment. By conducting research on these aspects, it will assist academic libraries in establishing and maintaining information literacy education.

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Appendix 1 Information Literacy Competency Standards for Higher Education

Standards, Performance Indicators, and Outcomes

Standard One

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

Performance Indicators:

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

Outcomes Include:

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

Outcomes Include:

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

Outcomes Include:

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

Outcomes Include:

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

Standard Two

The information literate student accesses needed information effectively and efficiently.

Performance Indicators:

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

Outcomes Include:

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

Outcomes Include:

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

Outcomes Include:

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

Outcomes Include:

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

Outcomes Include:

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

Standard Three

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

Performance Indicators:

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

Outcomes Include:

- a. Reads the text and selects main ideas
 - b. Restates textual concepts in his/her own words and selects data accurately
 - c. Identifies verbatim material that can be then appropriately quoted
2. The information literate student articulates and applies initial criteria for evaluating both the information and its sources.

Outcomes Include:

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

Outcomes Include:

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

Outcomes Include:

- a. Determines whether information satisfies the research or other information need
- b. Uses consciously selected criteria to determine whether the information contradicts or verifies information used from other sources
- c. Draws conclusions based upon information gathered

- d. Tests theories with discipline-appropriate techniques (e.g., simulators, experiments)
 - e. Determines probable accuracy by questioning the source of the data, the limitations of the information gathering tools or strategies, and the reasonableness of the conclusions
 - f. Integrates new information with previous information or knowledge
 - g. Selects information that provides evidence for the topic
5. The information literate student determines whether the new knowledge has an impact on the individual's value system and takes steps to reconcile differences.

Outcomes Include:

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

Outcomes Include:

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

Outcomes Include:

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

Standard Four

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

Performance Indicators:

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

Outcomes Include:

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

Outcomes Include:

- a. Maintains a journal or log of activities related to the information seeking, evaluating, and communicating process

- b. Reflects on past successes, failures, and alternative strategies
3. The information literate student communicates the product or performance effectively to others.

Outcomes Include:

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

Standard Five

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

Performance Indicators:

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

Outcomes Include:

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

Outcomes Include:

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

Outcomes Include:

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

Appendix 2 Student Consent Form



UNIVERSITY OF STELLENBOSCH BUSINESS SCHOOL
P.O. BOX 621
BELLVILLE
7530
TEL: 021 918 4258

Letter of Consent

I _____, agree to take part in this research.

I understand that my participation in this study is voluntary. I am free not to participate and have the right to withdraw from the study at any time, without having to explain myself.

Confidentiality

Any information that is obtained in connection with this study and that can be identified with you will remain anonymous and confidential and will be disclosed only with your permission or as required by law.

Confidentiality will be maintained by use of pseudonyms in publications. Furthermore, any background information that will make identification possible will not be included in any academic paper or public document. With regard to the artefacts and the interviews conducted, you will have the right to review the data to be used and to edit any information which pertains to you.

Participant Name: _____

Participant Signature _____

Researchers Name _____ Judy A. Williams _____

Researchers Signature _____

Supervisor:

Dr Sandy Zinn

Lecturer

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Fax: 021 959 1287

Appendix 3 Interview Consent Form



UNIVERSITY OF STELLENBOSCH BUSINESS
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M.Bibl (Information studies): Research project

CONSENT TO PARTICIPATE IN AN INTERVIEW ON INFORMATION LITERACY EDUCATION AT UNIVERSITY OF STELLENBOSCH BUSINESS SCHOOL

I, _____ consent to participate in an interview with

Judy Williams, towards her research project. My signature below indicates my permission to use the material generated during the interview.

Signed at _____ (Place) on _____ (Date)

(Name)

Confidentiality

Any information that is obtained in connection with this study and that can be identified with you will remain anonymous and confidential and will be disclosed only with your permission or as required by law. Confidentiality will be maintained by use of pseudonyms in publications. Furthermore, any background information that will make identification possible will not be included in any academic paper or public document. With regard to the artefacts and the interviews conducted, you will have the right to review the data to be used and to edit any information which pertains to you.

The right to withdraw and to remain in the project

You may withdraw at any time without consequences of any kind. You can also refuse to answer any questions that you don't want to answer in the interview and still remain in the project.

Supervisor:

Sandy Zinn

Lecturer

Department of Library and Information Science

University of the Western Cape

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Tel: 021 959 2349

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Appendix 4 Pre-Information Literacy Questionnaire

Information literacy questionnaire

Information literacy is defined as “the ability to recognise when information is needed, the ability to locate, evaluate, and use effectively the needed information” (Association of College and Research Libraries, 2000: 2).

This questionnaire is simply to gauge some aspects of your information literacy. The results will give the librarians an indication of the information literacy skills to be concentrated on.

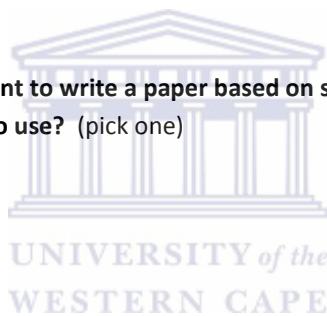
Do not try to spot the right answer. If you are not sure, select “not sure”

1. Which of the following databases have you used before?

- EBSCOhost
- ScienceDirect
- Emerald
- McGregor BFA
- Reuters
- SACat (South African Catalogue)
- Other
- None

2. Imagine you have an assignment to write a paper based on scholarly information. Which would be the most appropriate source to use? (pick one)

- Popular articles
- Academic articles
- Newspaper clippings
- Web site
- Books
- Theses
- Not sure



3. How can you tell you are reading an academic journal? Choose the best explanation.

- There are few, if any, advertisements
- Articles are in-depth and often have a bibliography
- Articles are written for the general public
- Issues are usually published quarterly
- Not sure

4. What does the following citation represent: (pick one)

A) Stair, R., Reynolds, G. & Chesney, T. 2008. *Principles of business information systems*. London: Cengage Learning EMEA.

- Book
- Academic article
- Dissertation
- Web source
- Not sure

What does the following citation represent: (pick one)

B) Cooney, M. & Hiris, L. 2003. Integrating information literacy and its assessment into a graduate business course: a collaborative framework. *Research Strategies*, 19 (3-2): 213-232.

- Book
- Academic article
- Dissertation
- Web source
- Not sure

C) Winter, M. 2006. Investigation into project management failure within information technology systems projects. Unpublished Masters dissertation. Stellenbosch: University of Stellenbosch

- Book
- Academic article
- Dissertation
- Web source
- Not sure

5. In an online database which combination of keywords below would retrieve the greatest number of records? (pick one)

- Millennials and workplace
- Millennials or workplace
- Millennials not workplace
- Not sure



6. If you find a very good article on your topic, what is your strategy to find more sources? (pick one)

- A database search
- Bibliography from the article
- Library Catalogue search
- Other issues / volumes of the journal
- Not sure

7. What are your biggest challenges to finding information presently? (pick one)

- Formulating your information need and selecting appropriate key concepts
- Finding supporting literature/peer reviewed literature for your topic
- Effectively using databases
- Evaluating the quality of information found
- Do not have any shortcomings.

8. Where do you start when searching for academic information?

(Indicate if you are not sure **OR** Rank your search options)

- Not sure

OR

Rank your search options 1st, 2nd, 3rd, 4th, 5th

- Google
 Academic databases
 Library catalogue
 Google Scholar
 Reference books


9. Plagiarism is using the ideas and words of someone else as my own work without citing the original work.

- True
 False

10. Plagiarism is ok if I am not caught because it only affects me and not others.

- True
 False

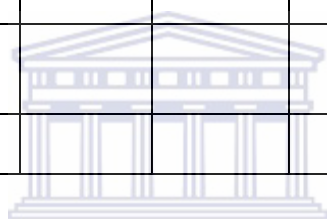
11. How confident do you feel when seeking scholarly information from: (please place a check mark under the appropriate sentiment?)



	Very confident	Confident	Not so confident	Not confident at all
A library web page				
The internet				
The librarian				

12. Please indicate your confidence level with the listed skills when you do your research.

	Very confident	Confident	Not so confident	Not confident at all	Not sure about my skill
Formulate questions based on information needed					
Identify potential sources of information					
Develop successful search strategies					
Access sources of information including computer based and other technologies					
Evaluate information in terms of relevance and accuracy for your research					
Organize information for application for your research					
Integrate new information into an your knowledge of the subject					
Use acquired information in critical thinking and problem solving					



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Thank you for your participation.

Appendix 5 Post-Information Literacy Questionnaire

Information literacy questionnaire

Information literacy is defined as “the ability to recognise when information is needed, the ability to locate, evaluate, and use effectively the needed information” (Association of College and Research Libraries, 2000: 2).

This questionnaire is simply to gauge some aspects of your information literacy. The results will give the librarians an indication of the information literacy skills to be concentrated on.

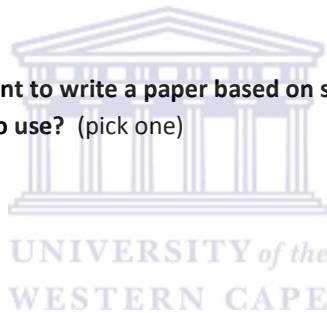
Do not try to spot the right answer. If you are not sure, select “not sure”

1. Which of the following databases have you used before?

- EBSCOhost
- ScienceDirect
- Emerald
- McGregor BFA
- Reuters
- SACat (South African Catalogue)
- Other
- None

2. Imagine you have an assignment to write a paper based on scholarly information. Which would be the most appropriate source to use? (pick one)

- Popular articles
- Academic articles
- Newspaper clippings
- Web site
- Books
- Theses
- Not sure



3. How can you tell you are reading an academic journal? Choose the best explanation.

- There are few, if any, advertisements
- Articles are in-depth and often have a bibliography
- Articles are written for the general public
- Issues are usually published quarterly
- Not sure

4. What does the following citation represent: (pick one)

D) Stair, R., Reynolds, G. & Chesney, T. 2008. *Principles of business information systems*. London: Cengage Learning EMEA.

- Book
- Academic article
- Dissertation
- Web source
- Not sure

What does the following citation represent: (pick one)

E) Cooney, M. & Hiris, L. 2003. Integrating information literacy and its assessment into a graduate business course: a collaborative framework. *Research Strategies*, 19 (3-2): 213-232.

- Book
- Academic article
- Dissertation
- Web source
- Not sure

F) Winter, M. 2006. Investigation into project management failure within information technology systems projects. Unpublished Masters dissertation. Stellenbosch: University of Stellenbosch

- Book
- Academic article
- Dissertation
- Web source
- Not sure

5. In an online database which combination of keywords below would retrieve the greatest number of records? (pick one)

- Millennials and workplace
- Millennials or workplace
- Millennials not workplace
- Not sure



6. If you find a very good article on your topic, what is your strategy to find more sources? (pick one)

- A database search
- Bibliography from the article
- Library Catalogue search
- Other issues / volumes of the journal
- Not sure

7. What are your biggest challenges to finding information presently? (pick one)

- Formulating your information need and selecting appropriate key concepts
- Finding supporting literature/peer reviewed literature for your topic
- Effectively using databases
- Evaluating the quality of information found
- Do not have any shortcomings.

8. Where do you start when searching for academic information?

(Indicate if you are not sure **OR** Rank your search options)

- Not sure

OR

Rank your search options 1st, 2nd, 3rd, 4th, 5th

- Google
- Academic databases
- Library catalogue
- Google Scholar
- Reference books

9. What was useful about the information literacy training that you received?

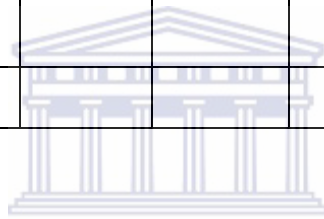
10. In which areas do you still require more help?

11. How confident do you feel when seeking scholarly information from: (please place a check mark under the appropriate sentiment?)

	Very confident	Confident	Not so confident	Not confident at all
A library web page				
The internet				
The librarian				

12. Please indicate your confidence level with the listed skills when you do your research.

	Very confident	Confident	Not so confident	Not confident at all	Not sure about my skill
Formulate questions based on information needed					
Identify potential sources of information					
Develop successful search strategies					
Access sources of information including computer based and other technologies					
Evaluate information in terms of relevance and accuracy for your research					
Organize information for application for your research					
Integrate new information into your knowledge of the subject					
Use acquired information in critical thinking and problem solving					



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Thank you for your participation.

Appendix 6 Information Literacy Group Assignment

Information Literacy: Task for Literature Review 2012 Part of Research Methodology Module MBA

Samual's quest

Today, with the shift in consumer preferences toward products and services that are more environmentally friendly, businesses need to align their strategies with the environmental impact of their activities, and save costs as an added benefit.

Samual is the Facilities Manager of a large engineering company. He has been asked to develop a plan for the "greening" of the organization by making use of alternative cost saving energy sources. He needs to know what the latest trends regarding this topic is. He has outsourced this assignment to you as a consulting firm. Please prepare a reading list for Samual with relevant material on the topic

Steps in preparing the reading list :

- 1 **Define your information need.** (What are you going to research?)
- 2 **Generate some keywords.** You may need to find and skim an article or two to help you think of the best keywords. (Which keywords will help you to find the best resources). Write the list of keywords down
- 3 **Combine some of those keywords in a logical way** (Boolean logic), in order to direct (limit) and refine your search. Show us those combinations. For example:
 - Use: "___" to keep words connected
 - Use: and, or, not : to refine search
 - Limit journal articles to "peer reviewed", and date between 2005 - 2012
- 4 **Find academic reading material** such as books, journal articles, completed M & D research reports, and newspaper clippings in the following databases:

4.1 Journal articles:	EBSCOhost/SA-e Publications (12 articles)
4.2 Books :	SACAT, & SUNSEARCH (8 books)
4.3 Completed research :	SunScholar/NEXUS/IRSPACE) (4 reports)
4.4 Google Scholar Search	(4 documents)
4.5 Newspaper articles	SAMedia (2 newspaper articles)

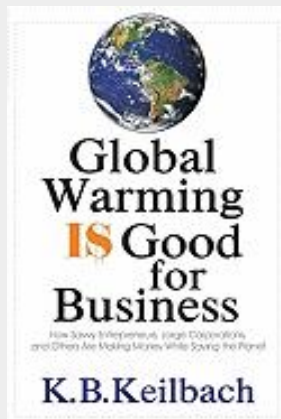
Present a list of the reading material with a short motivation/evaluation why these items are relevant to Samual's quest . Show that you can critically look at results and select only the best sources. Example :

5.1 Article :

SEVEN MYTHS ABOUT **ALTERNATIVE ENERGY**. By: Grunwald, Michael. Foreign Policy, Sep/Oct2009, Issue 174, p130-133, 4p, 5 Color Photographs, 1 Black and White Photograph; Abstract In this article the author explores several commonly held misconceptions about forms of **energy** other than fossil fuels and petroleum products. He contradicts the notion that biomass **energy** and solar and nuclear power could be solutions to the dependence on oil. Among other issues he examines the limited production of **energy** derived from wind power, the use of nuclear **energy** in place of coal, and behavioral changes among consumers that will end climate change, the production of greenhouse gases and global warming.;

5.2 Book

Motivation : highlighted keywords are relevant to the research question



Global warming is good for business : how savvy entrepreneurs, large corporations, and others are making money while saving the planet /

K B Keilbach

2009

English Book xiv, 288 p. ; 24 cm.
Fresno, CA : Quill Driver Books, ; ISBN: 9781884956881 1884956882

Publisher's description -- Concern about greenhouse gases and the warming of the planet is reaching a crescendo never before experienced. In the past, crises that have threatened the lives and livelihoods of huge portions of the populace have spurred entrepreneurs to come up with solutions that eventually tempered the crisis, improved the quality of life, and laid the groundwork for future growth and development....

Title: Global warming is good for business : how savvy entrepreneurs, large corporations, and others are making money while saving the planet /

Author(s): Keilbach, K. B. 1960- (Kimberly B.),

Publication: Fresno, CA : Quill Driver Books,

Year: 2009

Abstract: Publisher's description -- Concern about greenhouse gases and the warming of the planet is reaching a crescendo never before experienced. In the past, crises that have threatened the lives and livelihoods of huge portions of the populace have spurred entrepreneurs to come up with solutions that eventually tempered the crisis, improved the quality of life, and laid the groundwork for future growth and development. As consumers demand planet-friendly products and investors look for so-called green companies to put their money into, more and more businesses are actively seeking ways to fill this demand. Whether their initial motives are altruistic or not, entrepreneurs, venture capitalists, and corporate leaders are finding a huge market for green goods and services. Bottom line: Global warming is good for business. Global Warming Is Good for Business explores the people and forces at work today to deal with and profit from global warming. From universities, whose research projects spin off green business opportunities, to entrepreneurs and large companies scrambling onto the green bandwagon -- all mixed with government agencies attempting to support the effort -- Keilbach's entertaining narrative reveals an expansive community coming together to change the world and make a profit, one joule at a time. Just one example: In Scotland they are already using the Wavegen Limpet, a column that is

partly submerged in the ocean. As the water level rises and falls, electricity is generated.

Contents: Acknowledgments -- Introduction -- pt. 1. The incubators -- 1. Stabilization wedges -- 2. The LEAFHouse--solar power -- 3. The power mix--wind & waves -- 4. Biofuel : paradigm for the future -- 5. The hydrogen highway -- 6. Eco-capitalists -- pt. 2. The game changers -- 7. The environmental power players -- 8. The nuclear reactor in our backyard -- 9. The grandchildren's test -- 10. The Earth's heat -- 11. Uncharted waters -- 12. Here comes the sun -- 13. Wind power--a pioneering technology -- 14. Save the planet : use more trees -- 15. Not your father's automobile -- 16. From railroads to rapid transit -- 17. **Green buildings** -- pt. 3. The buck starts here -- 18. Top-down or bottom-up? -- 19. The moral equivalent of war -- 20. **Energy** star -- 21. Stewardship in the twenty-first century -- 22. Sustainable systems -- 23. Texas : from big oil to big wind -- 24. Hawaii : the ocean provides -- 25. Austin : think globally, act locally -- 26. Portland : from stumptown to sustainable -- 27. Miami : smart growth -- 28. Where we go from here -- Glossary -- Bibliography -- Index.

Motivation : this book will help Samuel to understand the issues regarding the greening of a business

5.3. Research Report

Energy saving mechanisms in the mining industry : a case study of switching off non-essential power

Govender, Soobramoney

URI: <http://hdl.handle.net/10019.1/843>

Date: 2008-03 Thesis (MBA (Business Management))--University of Stellenbosch, 2008.

ENGLISH SUMMARY: The world today is facing many energy challenges such as power outages experienced internationally and in South Africa. The demand for energy is constantly increasing and is creating environmental problems such as climate change, which is presently a major concern to society. This study is an attempt to establish how energy saving mechanisms such as the elimination of non-essential power can add economic value within the mining industry. This paper examines the effect of non-essential power and how it could assist companies to reduce their energy consumption, aid local power utilities in a crisis and maintain normal production levels. This research report was based on an investigation for power saving opportunities at a mining company during a power crisis. The paper looks at energy efficiency and the barriers to the adoption of energy savings. Companies in general do not have a structured way of addressing non-essential power saving. Companies are not aware of the value such initiatives could have on corporate responsibility and sustainable reporting. The benefits of energy efficiency and nonessential power on the triple bottom line are not clearly documented in literature. When comparing the impact of non-essential power on the triple bottom line, it became obvious that further research is required in order to prove whether it influences the social aspect. The impact of power generation on the global environment has not been clearly calculated and linked to the value of saving power. The literature review highlighted that companies are focusing on long-term initiatives instead of smaller initiatives, which requires less effort. During the investigation of the mining company, it was found that not much effort was made during the design stages in separating the electrical circuits from non-essential and essential power.

- 5 Submit your finished task through **Turnitin** (the usual USB process), with cover page, with your group's names and student numbers by the due date. It is a **group** task. Please note: Don't put your task through Plagiarism Playground, because most of what you give us can be matched.

Show us how you did your search, the list of relevant resources that you found, and your motivation/critical evaluation of how the sources can assist Samuel to develop a green plan for his organization.

OUTCOMES: INFORMATION LITERACY TASK

Overall: MBA students will be information literate, showing that they can locate, understand, evaluate and use relevant information in various formats from a wide range of sources

Specific outcome	Ability developed
The student will articulate and focus on a specific information need (what)	The student can: <ul style="list-style-type: none"> • when given a topic, refine and formulate the given information need • refine the focus of the information need by selecting appropriate key concepts (search terms), and by formulating questions based on the information need
The student will understand the structure and format of information (where)	The student can: <ul style="list-style-type: none"> • identify a variety of types and formats of potential sources of information. Examples: books, reference material, journal articles, original research, raw data/statistics
The student will develop effective and efficient information search and retrieval strategies (how)	The student can: <ul style="list-style-type: none"> • identify and locate relevant information sources • select appropriate access tools. Examples : book catalogues, theses repositories, journal databases • construct and carry out an effective search strategy, by using appropriate commands for the retrieval. Examples: Boolean operators, truncation, advanced search instructions •
The student will develop skills to critically evaluate and select appropriate academic information sources available (how good are sources)	The student can: <ul style="list-style-type: none"> • distinguish between popular and scholarly material • distinguish between primary and secondary sources • evaluate sources for quality, validity and currency • evaluate the credibility of the author(s) of the work
This outcome will be seen only in the student's Research Report: The student will effectively and critically apply the information retrieved to solve a research question or use the information effectively to accomplish a specific purpose (critical – apply)	The student can: <ul style="list-style-type: none"> • synthesise the information found • use citations correctly • document the information • manipulate digital text, images and data as needed, transferring them from their original locations and formats to a new context •

Appendix 7 Interview Questions to Research Methodology Lecturer

Interview script for the research methodology lecturer

1. For background information, what subject(s) do you teach and what other interaction do you have with business students?
2. What is your understanding of information literacy?
3. In your experience (assessing assignments and supervising theses) how would you describe the MBA's information literacy?
4. Do you think a once-off information literacy class is sufficient for MBA students?
5. How would you describe the collaboration in the information literacy education that USB provide?
6. Do you think an information literate student can perform and produce better academic results?
7. What would be your ideal in teaching information literacy to MBA students?

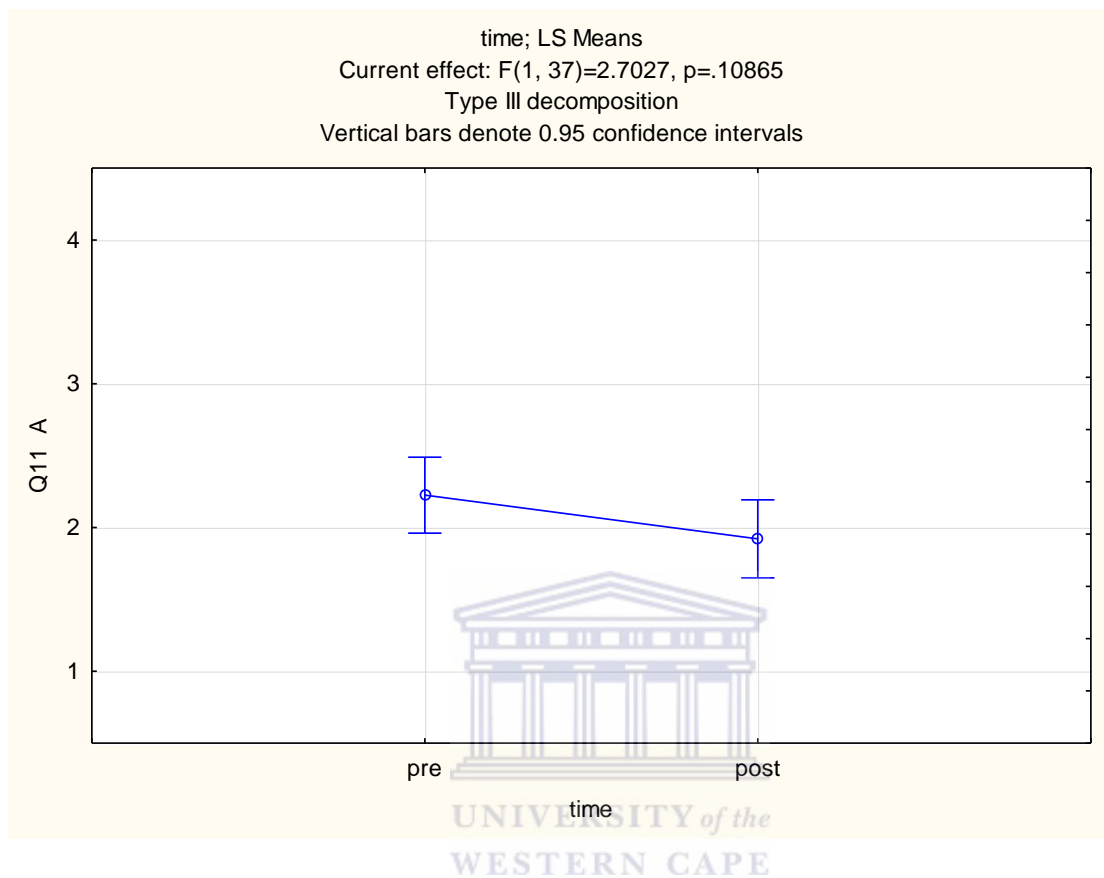
Appendix 8 Interview Questions to Information Literacy Facilitator

Interview script for information literacy facilitator

1. Can you describe the nature of the information literacy training (what are the objectives)?
2. How would you describe the collaboration between you and the business academics in terms of the information literacy education? Are you ok with the current collaboration?
3. Comment on the overall level of information literacy of graduate students (if it is too low, what can be done to improve it?)
4. What are your views about the information literacy assignment?
5. What are the current difficulties you face in delivering information literacy to MBA students?
6. What would be your ideal in terms of the information literacy education for masters students?

Appendix 9 Graphs of Question 11 of the Information Literacy Questionnaire

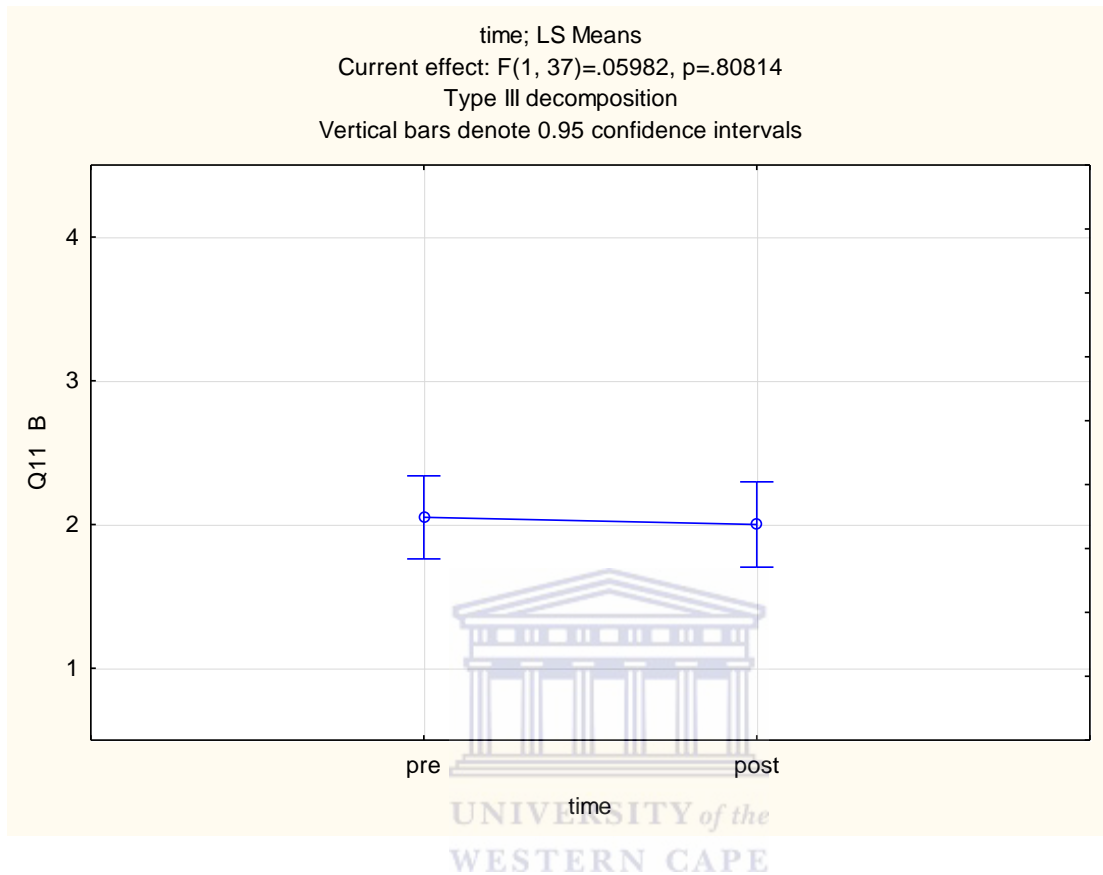
Question 11 A: How confident do you feel when seeking scholarly information from a library web page



Descriptive Statistics (Spreadsheet2 in results.stw)

Descriptive Statistics (Spreadsheet2 in results.stw)						
Effect	Level of Factor	N	Q11 A Mean	Q11 A Std.Dev.	Q11 A Std.Err	Q11 A -95.00% +95.00%
Total		78	2.07692	0.83384	0.09441	1.8889 2.2649
time	pre	40	2.22500	0.89119	0.14091	1.9400 2.5100
time	post	38	1.92105	0.74911	0.12152	1.6748 2.1672

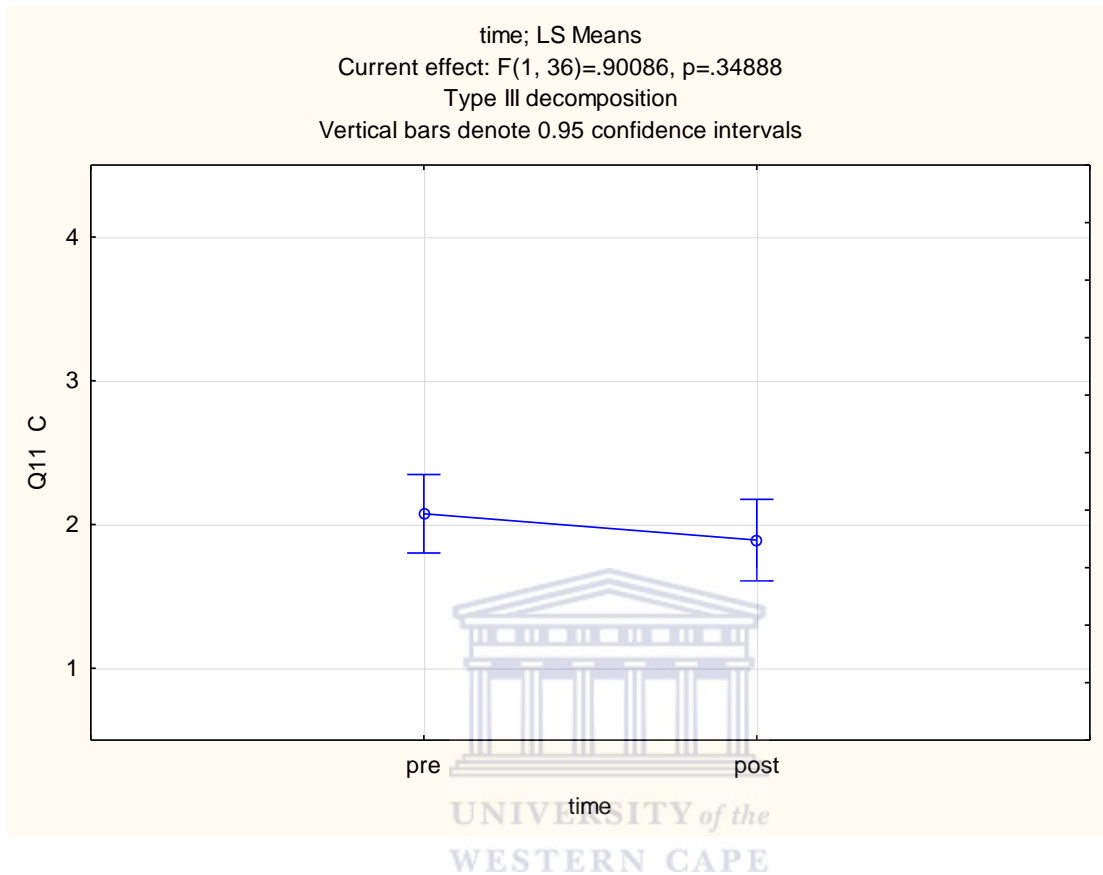
Question 11 B: How confident do you feel when seeking scholarly information from the Internet



Descriptive Statistics (Spreadsheet2 in results.stw)

Descriptive Statistics (Spreadsheet2 in results.stw)						
Effect	Level of Factor	N	Q11 B Mean	Q11 B Std.Dev.	Q11 B Std.Err	Q11 B -95.00% +95.00%
Total		78	2.02564	0.89695	0.10156	1.8234 2.2278
time	pre	40	2.05000	0.90440	0.14299	1.7600 2.3392
time	post	38	2.00000	0.90045	0.14607	1.7040 2.2959

Question 11 C: How confident do you feel when seeking scholarly information from the librarian

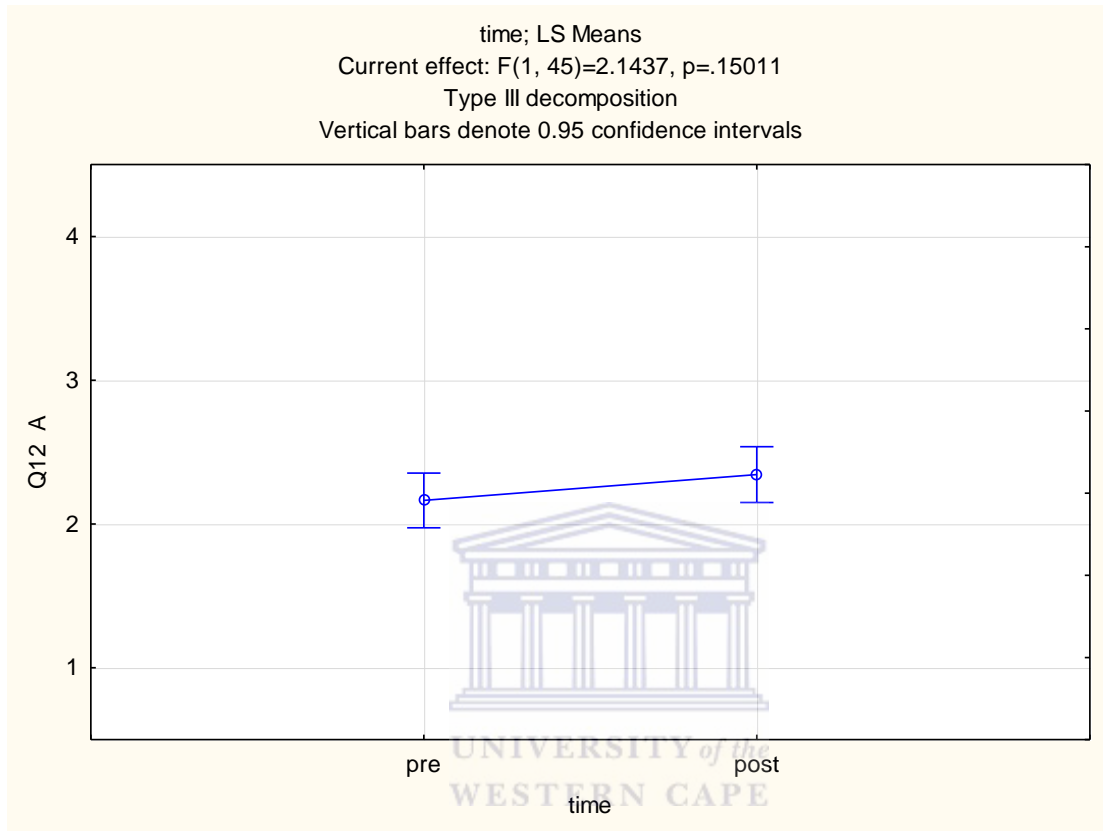


Descriptive Statistics (Spreadsheet2 in results.stw)

Descriptive Statistics (Spreadsheet2 in results.stw)							
Effect	Level of Factor	N	Q11 C Mean	Q11 C Std.Dev.	Q11 C Std.Err	Q11 C -95.00%	Q11 C +95.00%
Total		77	1.98701	0.85059	0.09693	1.7940	2.1800
time	pre	40	2.07500	0.85896	0.13581	1.8000	2.3497
time	post	37	1.89189	0.84274	0.13854	1.6105	2.1728

Appendix 10 Graphs of Question 12 of the Information Literacy Questionnaire

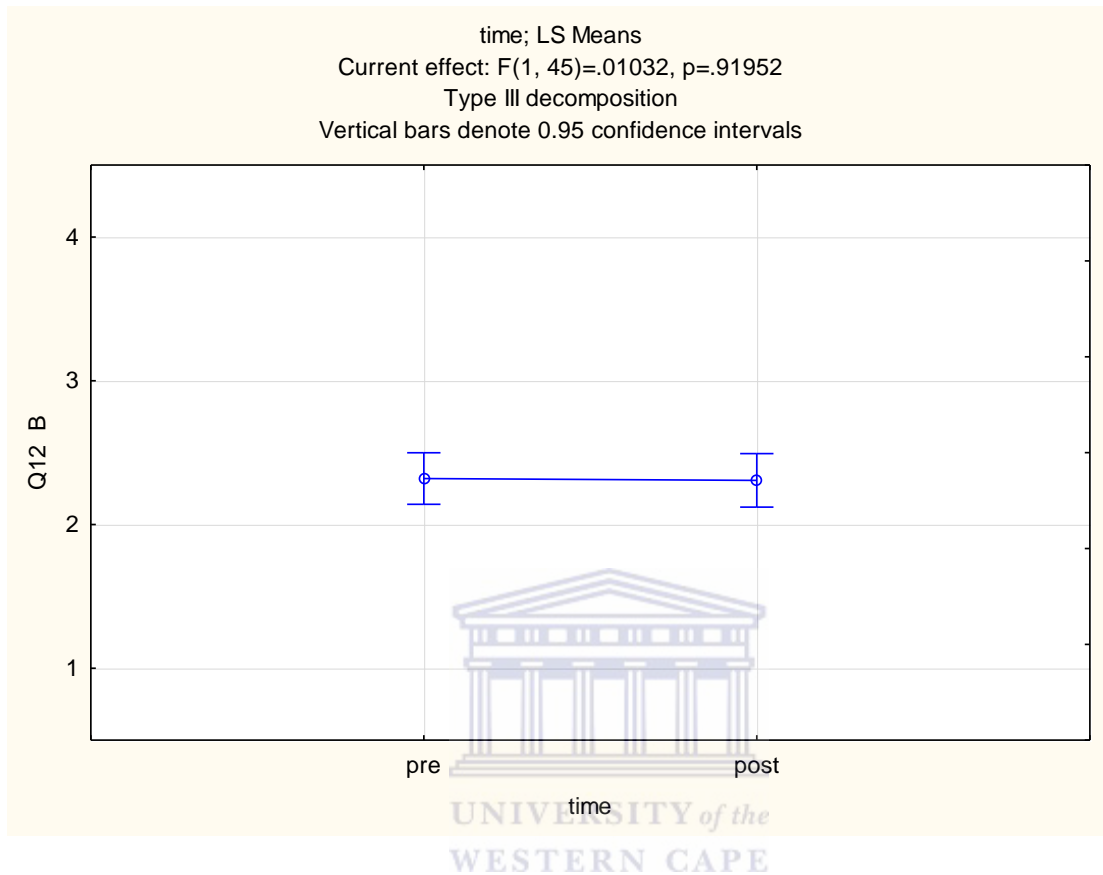
Question 12 A: Please indicate your confidence level with the listed skills – Formulate questions based on information need



Descriptive Statistics (Spreadsheet2 in results.stw)

Descriptive Statistics (Spreadsheet2 in results.stw)							
Effect	Level of Factor	N	Q12 A Mean	Q12 A Std.Dev.	Q12 A Std.Err	Q12 A -95.00%	Q12 A +95.00%
Total		102	2.25490	0.68486	0.06781	2.1204	2.3894
time	pre	52	2.17307	0.67797	0.09401	1.9843	2.3618
time	post	50	2.34000	0.68838	0.09735	2.1444	2.5356

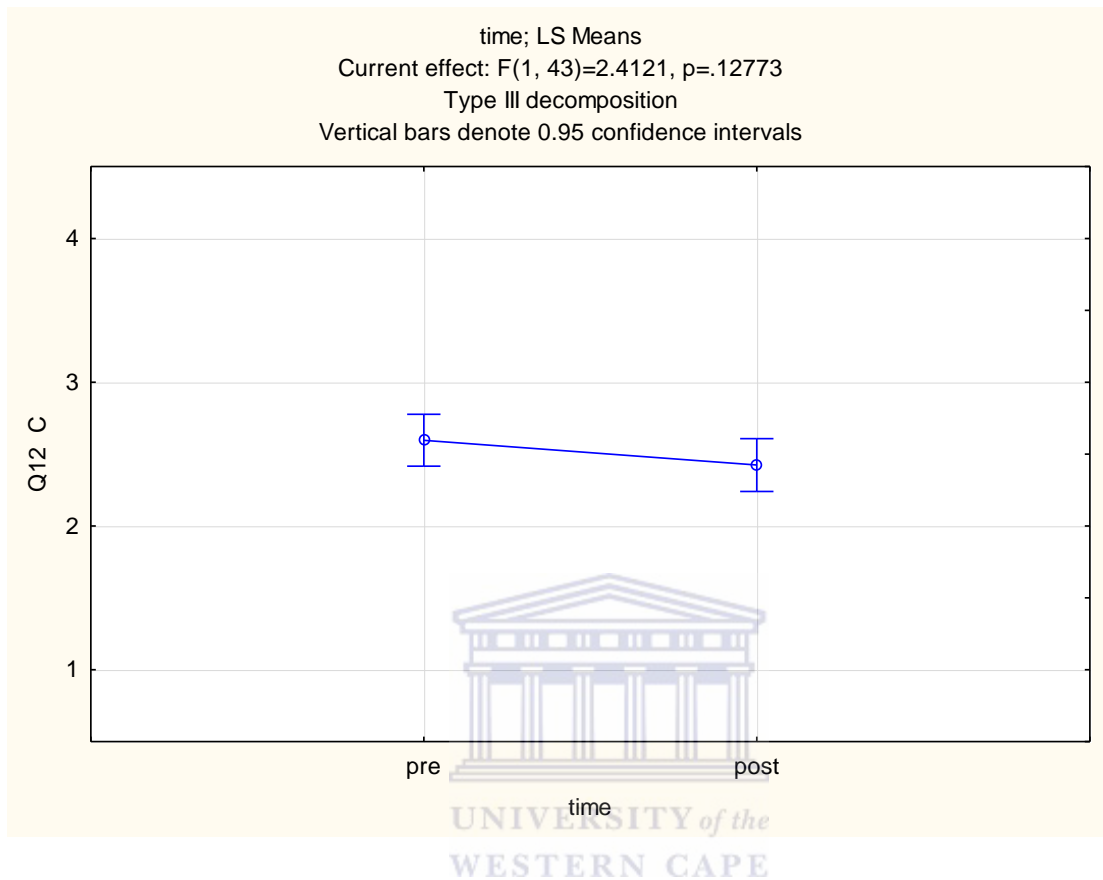
Question 12 B: Please indicate your confidence level with the listed skills – Identify potential sources of information



Descriptive Statistics (Spreadsheet2 in results.stw)

Descriptive Statistics (Spreadsheet2 in results.stw)							
Effect	Level of Factor	N	Q12 B Mean	Q12 B Std.Dev.	Q12 B Std.Err	Q12 B -95.00%	Q12 B +95.00%
Total		102	2.31372	0.64455	0.06382	2.187	2.4403
time	pre	53	2.32075	0.61311	0.08421	2.1511	2.4897
time	post	49	2.30612	0.68325	0.09760	2.1095	2.5023

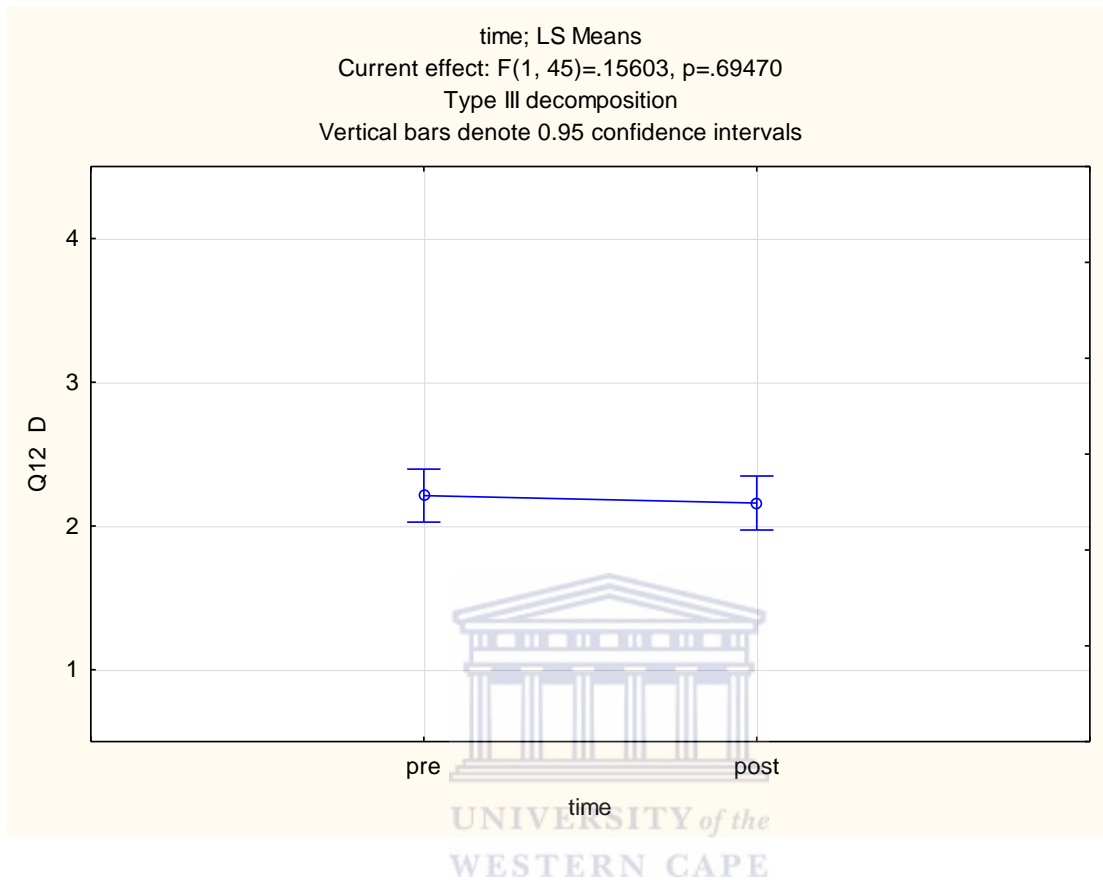
Question 12 C: Please indicate your confidence level with the listed skills – Develop successful search strategies



Descriptive Statistics (Spreadsheet2 in results.stw)

		Descriptive Statistics (Spreadsheet2 in results.stw)					
Effect	Level of Factor	N	Q12 C Mean	Q12 C Std.Dev.	Q12 C Std.Err	Q12 C -95.00%	Q12 C +95.00%
Total		100	2.51000	0.64346	0.06434	2.3823	2.63767
time	pre	51	2.60784	0.60260	0.08438	2.4383	2.77733
time	post	49	2.40816	0.67448	0.09635	2.2144	2.60189

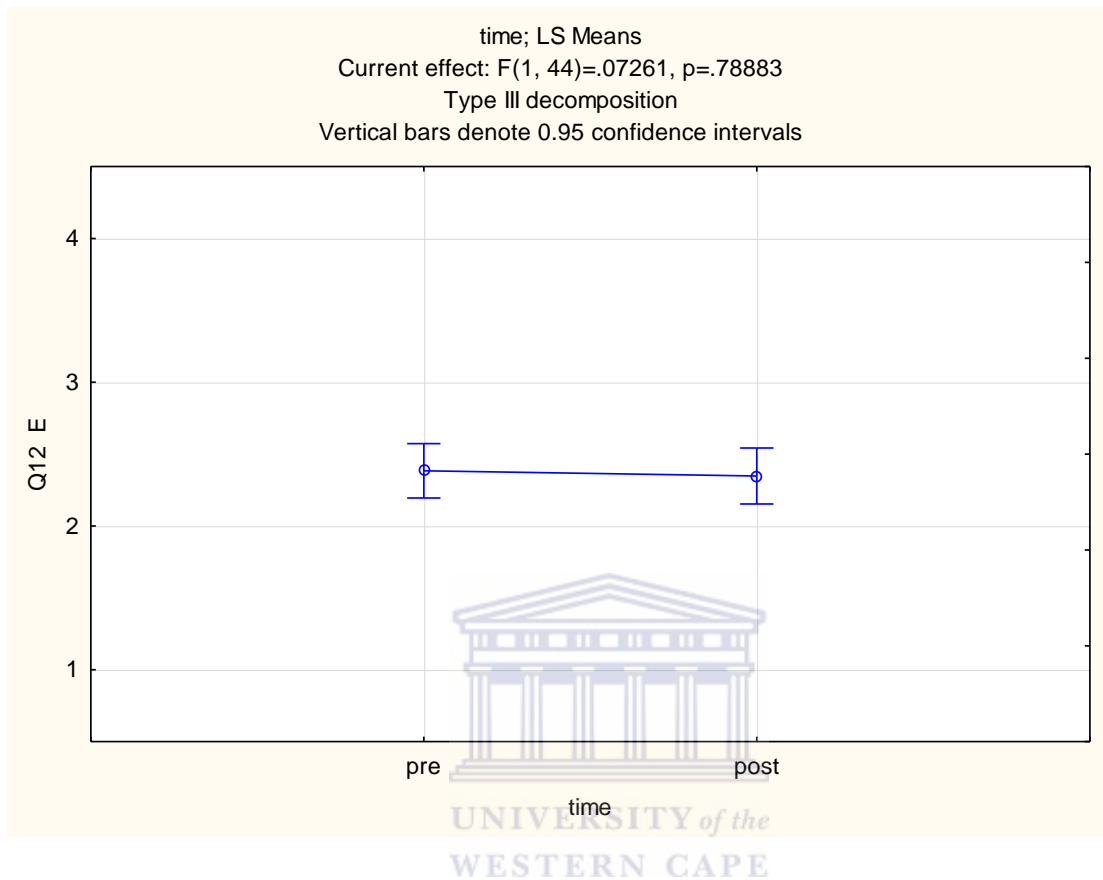
Question 12 D: Please indicate your confidence level with the listed skills – Access sources of information including computer based and other technologies



Descriptive Statistics (Spreadsheet2 in results.stw)

Descriptive Statistics (Spreadsheet2 in results.stw)							
Effect	Level of Factor	N	Q12 D Mean	Q12 D Std.Dev.	Q12 D Std.Err	Q12 D -95.00%	Q12 D +95.00%
Total		102	2.18627	0.65597	0.06495	2.0574	2.3151
time	pre	52	2.21153	0.66676	0.09246	2.0257	2.3971
time	post	50	2.16000	0.65027	0.09196	1.9752	2.3448

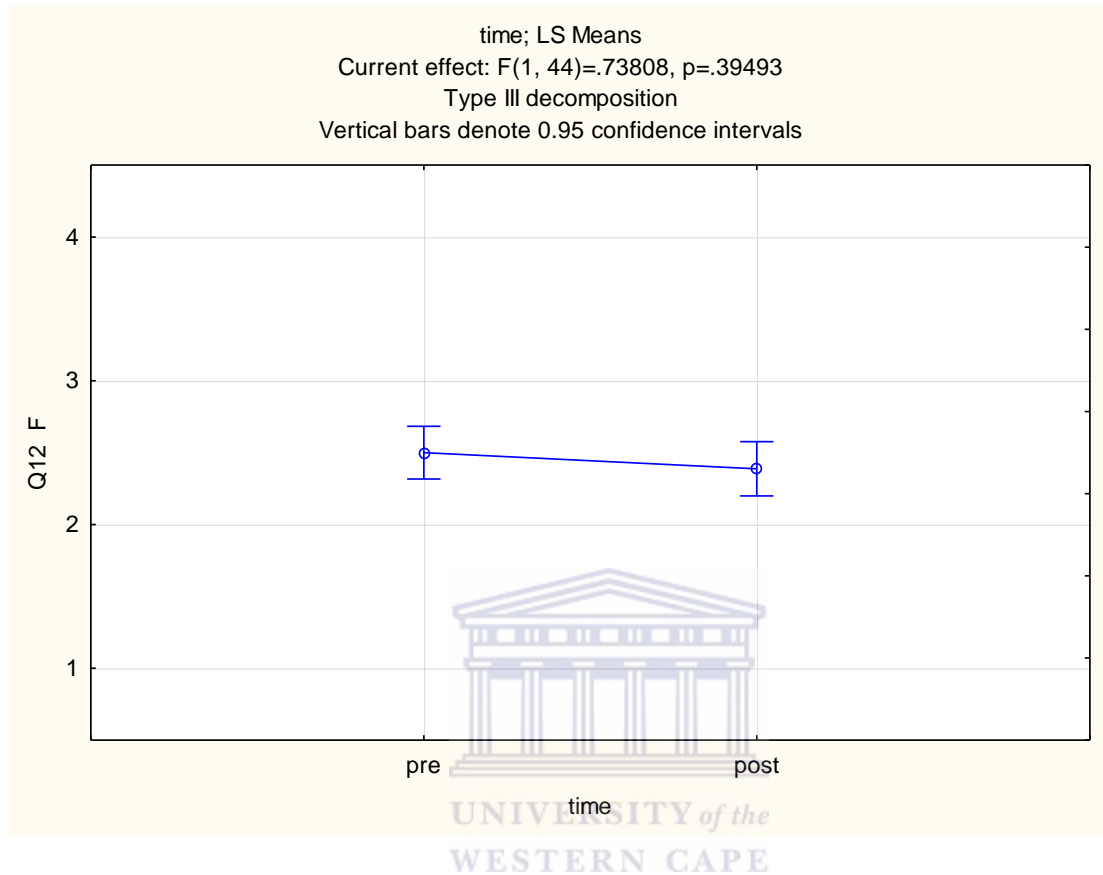
Question 12 E: Please indicate your confidence level with the listed skills – Evaluate information



Descriptive Statistics (Spreadsheet2 in results.stw)

Descriptive Statistics (Spreadsheet2 in results.stw)							
Effect	Level of Factor	N	Q12 E Mean	Q12 E Std.Dev.	Q12 E Std.Err	Q12 E -95.00%	Q12 E +95.00%
Total		101	2.36633	0.67413	0.06707	2.233	2.4994
time	pre	52	2.38461	0.66136	0.09171	2.2007	2.5687
time	post	49	2.34693	0.69375	0.09910	2.1477	2.5462

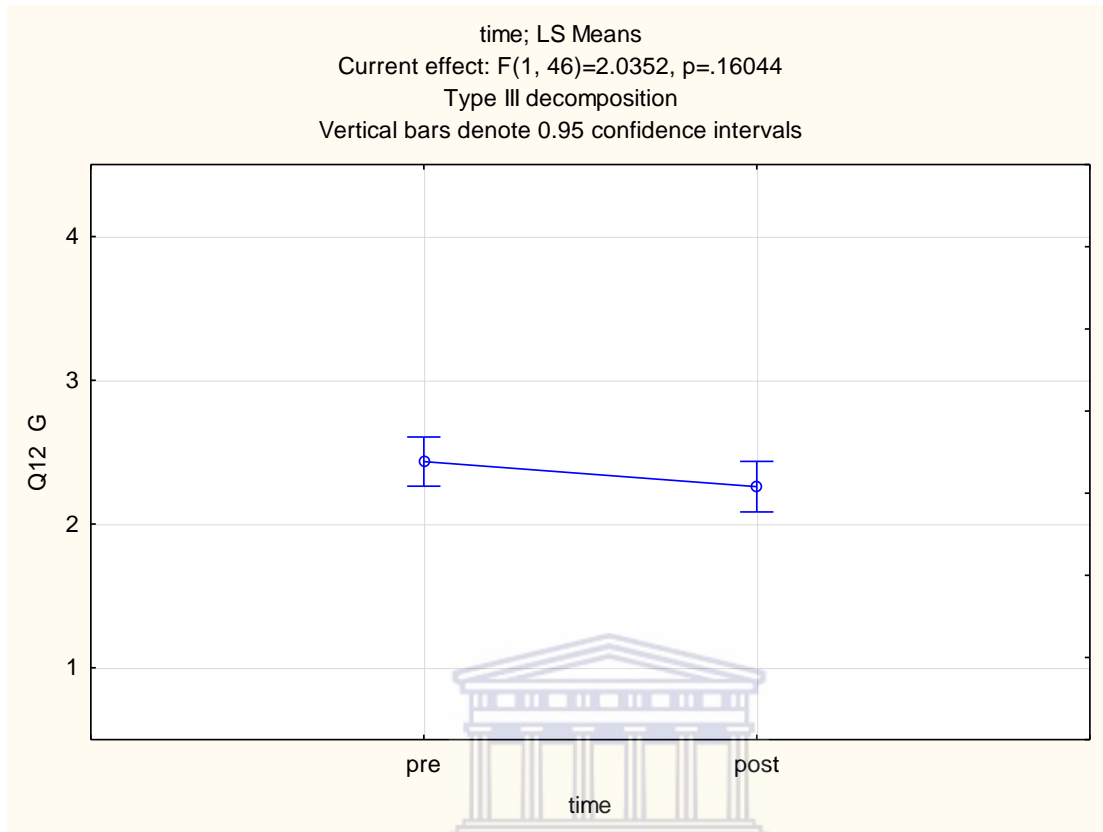
Question 12 F: Please indicate your confidence level with the listed skills – Organise information for practical application



Descriptive Statistics (Spreadsheet2 in results.stw)

Descriptive Statistics (Spreadsheet2 in results.stw)							
Effect	Level of Factor	N	Q12 F Mean	Q12 F Std.Dev.	Q12 F Std.Err	Q12 F -95.00%	Q12 F +95.00%
Total		101	2.44554	0.65536	0.06521	2.3162	2.5749
time	pre	52	2.50000	0.72760	0.10090	2.2977	2.7025
time	post	49	2.38775	0.57068	0.08152	2.2238	2.5516

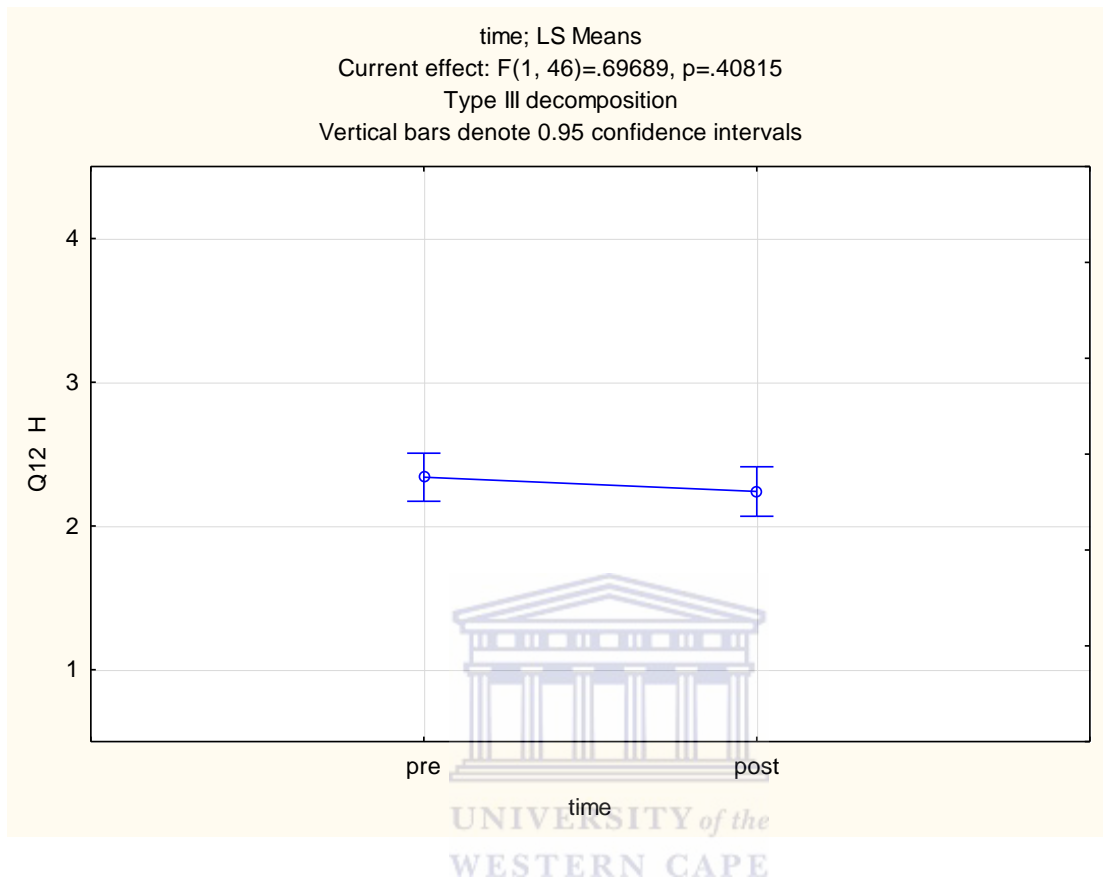
Question 12 G : Please indicate you confidence level with the listed skills – Integrate new information into an existing body of knowledge



Descriptive Statistics (Spreadsheet2 in results.stw)

Descriptive Statistics (Spreadsheet2 in results.stw)							
Effect	Level of Factor	N	Q12 G Mean	Q12 G Std.Dev.	Q12 G Std.Err	Q12 G -95.00%	Q12 G +95.00%
Total		103	2.34951	0.62164	0.06125	2.228	2.4710
time	pre	53	2.43396	0.63577	0.08733	2.258	2.6092
time	post	50	2.26000	0.59966	0.08480	2.089	2.4304

Question 12 H: Please indicate your confidence level with the listed skills – Use information in critical thinking and problem solving



Descriptive Statistics (Spreadsheet2 in results.stw)

Descriptive Statistics (Spreadsheet2 in results.stw)							
Effect	Level of Factor	N	Q12 H Mean	Q12 H Std.Dev.	Q12 H Std.Err	Q12 H -95.00%	Q12 H +95.00%
Total		103	2.29126	0.60441	0.05955	2.173	2.4093
time	pre	53	2.33962	0.58649	0.08056	2.178	2.5012
time	post	50	2.24000	0.62466	0.08834	2.062	2.4175

Appendix 11 Assignment evaluation form

Assignment evaluation

Final result

Group

Define your information need (10)

Presentation (10)

Generate some keywords (5)

Motivation (10)

Combine some of those keywords in a logical way (5)

Find academic reading material

Journal articles													
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(24)

Books									
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(16)

Completed research				
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(8)

Google Scholar Search				
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(8)

Newspaper article			
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(4)

General comments



Appendix 12 Interview transcripts: Information Literacy Facilitator

1. Can you describe the nature of the information literacy training (what are the objectives)?

The nature of information literacy training is partly curriculum integrated and general orientation. The one part where the IL training is curriculum integrated that forms part of all the MBA first year students, it comprise of session of 2 - 2½ hours which we talk about the general information about the library and where we explain in depth all the facets of the library.

My overall aim is that MBA students are IL literate, showing us that they can locate information; they would know where to find information; they can understand the difference between the different sources; how would they know what a peer reviewed article is, even the difference between articles and books. I find that students sometimes do not know what the difference is. Even the difference between a newspaper and an article: there is a huge difference. When will you use a newspaper, when would you use an article? And then how to evaluate? You show them on Google Scholar and Google and even when they get results on the libraries website, how do they evaluate, how do they know which ones are applicable and are relevant. Can they evaluate in terms of the date, are they quoting books from 20 year ago – especially in the MBA field – the students must have their hands on the latest, most recent information. They must know where to find peer reviewed information because that will help them in their evaluation. They must be able to know who the gurus are, the real authors who publish on this topic. So, it is very important that they know how to evaluate the sources. Especially when they work on the open sources and Google, how do they know if it is an authoritative source. We try to train them that and then the various formats form a wide range of sources. Also one of my aims is to excite them about the wide variety of information available. I want them to cannot wait to help themselves. I think most students don't even use this little bit of what is available for them to use and if they get excited about research, about finding information, how to construct the whole literature search and the search strings. And when they grip that, then I'm sure that students say "Oh wow, it is fantastic to do research!" Especially with MBA students, because they are going to be managers and executives in firms. They must make decisions on good sources and information. They cannot quote from the Huisgenoot and the Rooi Rose and those types. They must quote from the Harvard Business Review, the California Management Review and the South African journals. But do they know how to find it and also do they read the latest information?

So part of it is also to make them knowledgeable in terms of their subject and what they should know, so I also concentrate on showing them how to create alerts for the core collection of journals that we have and e-books that we have.

One aspect that we do not really address – which is difficult – is the whole idea of the application of the information. We try in the case study just to get students to locate the information but one step further would be them to develop something or to plan something or to use the information. So it's one thing to find the relevant sources but can they actually apply what they find; can they read critically and use the best parts? But in our case study we do not really get to that point. The objective is to get the students IL literate according to what information do they need. Will they know what to find, where to find it, how to find it. In other words: the strategy. How good are the sources and in the end how to apply it. But in the research report we will see that in the end. Can they use the information and come up with some product?

2. How would you describe the collaboration between you and the business academics in terms of the information literacy education? Are you ok with the current collaboration?

The history of the information literacy program in the business school started by just having general introductory session about the library. Then when they developed the research practical module of the MBA students it was part of the research methodology module for two or three years and then they moved it. They could not decide if it should be part there and then they moved it to the personal skills development module where they thought that it is one of the skills that the managers should have. But I never felt comfortable with the module in which they placed the information literacy course. For the last two years it is back in the Research Methodology module. So it fits in very well, but I would like to see more collaboration between me and the other lecturers because I think it is still a little bit fragmented. The one lecturer work with how to develop a research proposal, the other lecturer talk about qualitative research and the other one talk about narrative, different methodologies and how do you write scientifically. But I think the IL is not just a little part it is actually part of the whole process and that we should collaborate more in terms of maybe a spread. There are some lecturers who is not that well IL literate. They are literate in terms of their little bit but up to now the collaboration is very good and I am very glad that it is curriculum integrated because that is a very difficult thing to get that because at the US it is

only the Business School and the Law department that's got curriculum integrated IL courses. We are very glad about that. The students get more marks for that, so as you know, the students are more motivated the moment that they have to apply IL. So the collaboration is very good and I hope we can continue with this collaboration and I would very much like to see the results of your research going back to the lecturers and faculty who works with the research methodology module so that they can see the effect of the IL. But up to now I am very glad and thankful for the good collaboration.

Interviewer: SO HOW DO THEY COLLABORATE? DO THEY HELP YOU WITH THE CONTENT?

Yes, the first few years the lecturer developed the case study and I worked from there but the last two years I developed the case study but I did it on the same method as the lecturer. The case study works well so we just make a different scenario because students work with case studies. It is one of the better methods to get information through but next year we are not sure who is going to co-ordinate this course but maybe its Jako or any of the other lecturers. I need to sit down with them and ask them if they still think we should use the case study method to bring the IL through or would they suggest something else. But the most important thing is that through your assignment you should be able to see the standards; to see if they reached it. In that case the case study works well; you can immediately test them. But we have to think it through: should we go on with the case study or should we use another method.

3. Comment on the overall level of information literacy of graduate students (if it is too low, what can be done to improve it?)

One would think that students on Master's level are already quite information literate, but unfortunately that's not true and I'm sure your pre-test will show it. Lots of the MBA students come from an engineering or BComm background and they did not use the library extensively in their undergrad years. It is not like the social sciences or the humanities students whose assignments are directly linked to how many sources they can find and write something up about. Whereas 50% of the MBA students come from where they are not that experienced in the use of the library. So one cannot think that they are already IL. So I start rather basic, with the basic stuff, and then try to make it more advance by showing them how to search and to do better searches. That is a gap that graduate students have but they are

becoming more knowledgeable because they all search Google. I think as we progress the students are computer literate. Previously we had students who could not use the computers. They could not use the mouse and didn't know where to save things. Now they are very computer literate but they still need good information training to bring them on the level where we would like them to be.

4. What are your views about the information literacy assignment?

We try to address some sort of critical issue that is part of the student's world and in the business world. The first or second one was on HIV/Aids: how would they manage that in the organisation. Then it was about social media and the young people in the organisation and how to get them into the organisation and the different generations. This year's topic was also very relevant in terms of the greening of the organisation; the whole sustainability of the organisation. So we try to choose a topic that the students will find interesting. But if I can be critical about this topic, the students tended to be too technical. They went into this direction where they found information about heat pumps and hydraulics and batteries and how to use all sorts of renewable energy. Whereas our aim with this assignment was actually to focus on how to green the organisation and how it is a more holistic approach, some of the students went off track in terms of the whole renewable energy and the sustainability. So maybe I should have focused more in telling them when you have a topic like that, what is your end-result. They had to develop a green plan as you've seen when we marked the assignments. They were very technical. It would have been very difficult for that facility's manager to use that information to get a general green plan. They had to think of more aspects of a greening plan. So that would be one of my critical comments. The other one is that I could see, and you would agree with me, that because it is a group assignment the input of the students were not the same, you could see in one assignment that the results for the books are for instance better than the journal articles or the research that they found was much more focused than for instance the books. So what in real life happens, is that they spread the load of the assignment: you do the books, you do the journal articles. They do not get the experience in finding all the sources all of them and comparing them. Therefore I don't think to use the case study for a group assignment is the best. To test information literacy I would rather prefer them to do an individual task so that you can test them individually. So they do the pre-test individually. You even give them just a number when they hand in their assignments and just that same number again. It can still be anonymous in

this way, so that you can track an individual student. How did the student do in the pre-test? How did he do in his assignment and what happened in the post-test? You can track a specific student. It's so difficult now that we have a pre-test – a general pre-test – then we have the assignment of the specific group and then we have general post-test. We cannot really relate the whole process, so in future I would prefer to give each student an individual assignment. And then the mark would also be fairer because one student put in a lot of work and found good sources for articles and another one did the basic story for research or whatever. But that would make the load for the librarian much harder; we will have to sit many more hours to mark them. I'm not sure how many students we marked.

Another problem with the information literacy assignment – and we've talked about that – is that we try to have a type of memorandum to mark according to so that we know when we saw 'Greening of the organisation' the same good sources we found in the different groups but it still would be better if we had a fair sort of marking system. I tend to mark lightly, you know: "Oh well, they have it more or less...", but one should have a more – I won't say strict – way of marking. But when you marked mine you saw that I mark very light. I tend to give them more marks than they actually should get, so one should actually make sure about the marking as well. I feel the reason why I'm marking them so lightly is because I don't want to alienate them from the library. Now they get a bad mark, they feel negative about the library. For the really good students I like to comment and say "Wow, this is fantastic". But what do you say to those guys who only get 50 – 55%, you know. How do you get them on board? We need to think through that as well.

5. What are the current difficulties you face in delivering information literacy to MBA students?

I would say the most important one is time; there is a time limit. The program for the MBA students are so full, they cram the program, so to find a good spot to put me in I must just take what they give me. The difficulty is that I can't negotiate when I want to see the students. They just give it to me in the beginning of the year. I would rather negotiate with them when the students really need it: when they start their research or when they finished with their classes or when half way through their classes. That is when they really need to focus on their research proposal. Then I would like to give my input whereas at the moment I just get a session in the beginning of the year and as you know one of the sessions was 21:30 -22:00 on the first or second day. They were so tired you can see that they didn't take

in much. So that is one of the difficulties. Other difficulties: well the classes are too big. Remember in the one class there were 57 in the class and there were only 40 computers so they had to sit in the alleys and then they don't have a computer in front of them. It's very important that it should be a hands-on session. They've taken away the computer lab so I don't know what the difficulties would be which we are going to face next year with the information literacy classes. It's one thing to say that students all have their laptops but when they come on campus their laptops are not setup for the campus so they won't be able to get in to all of this you know when they work on their laptops. I foresee problems with the MBA with this information literacy. I would also like to see that we have a training program. Not a compulsive one but one where we give more training sessions. So the difficulties that we face is that we get a good time slot, an appropriate time long enough and there are not enough computers for the students so the classroom setup is not that good. So we will have to find other ways of delivering information literacy; not only the classroom setup.

6. What would be your ideal in terms of the information literacy education for Master's students?

I've touched on some of the aspect but first of all I would like to see that we have a general introductory session. Short: it could be half an hour, forty five minutes when the students arrive on campus. It must be a very informal way of introducing them to the library, telling them about all that is available to them. Then they go on with their work. Then later on in the year we schedule information literacy classes which should stay within the Research Methodology module. I think it should be there. But apart from that, I think it should be much more subject-specific information literacy classes. So what I should actually do is to go to the entire faculty and tell them when you see your students for the first time in Human Resource Management, let me just quickly come in and tell them about all the human resources information sources that we have available. Do you know that we have this and this database, do you know how many nice books we have on it, do you know about the core journals on human resource management, like we do in the masters in coaching. We are very specific in how we train them; we train them how to find coaching books, like the LibGuides that we develop. So it's very important that the information literacy is not only imbedded in the research methodology module, but it should imbedded in all the courses and it could take different formats, it can be a LibGuide with video clips in it, specifically on that subject or it could be small discussion or focus groups in which I see the students in

groups so we divide the class. Say the fulltime students: I see all of them but in groups of five or six in the electronic classroom and we discuss what their problems are to find information; how can I assist them. So it could be the traditional set-up and it must be hands-on but it must not be during orientation week. The orientation: there is a place for orientation; telling them in general about the library and then later on when they actually need the library and they need to find good sources then we are here when they need us. And then make use of multimedia like LibGuides, podcast, video casts, put them on Webstudies and put them where the students are. But also give a general invitation for students that we are going to have a class on how to find information is Scopus or EBSCOhost or a specific database and train them on that, but that will not be compulsory and that will not be curriculum integrated. That we can do much more about. We can use the classroom, you know. There is a huge demand for Refworks training: how to refer to sources, plagiarism and those types of things. Even now in the new development in citation analysis, the whole story of Scopus and Science direct you as a researcher. Which journals to publish in, because quite a few students nowadays go ahead after they completed their MBA reports to publish. So to prepare them to publish. In an ideal world, they will all get an assignment individually where we have enough capacity to mark them; even have feedback on an individual basis and speaking to the students who did not do well. So if they get 60% or less I should have an opportunity to speak to that student and tell him why he did not get a good mark. We saw it with one or two classes when they did not do well; they came back as a group and I could explain that they did not have good subject terms or they did not have good strings or they found the information too technical or the information did not relate back to the information need. So I think there should be more feedback. It could be on a personal level or in terms of e-mail – especially with the students whose marks aren't that well. We can give them feedback and give them another chance to do another assignment. And it should be continuing information literacy training, not only once, especially with the modular and part-time students. They get their information literacy training in the beginning of the first year, but they actually do their research report in the end of the second or third year. Now they've forgotten everything of their assignment. So it should be continuous or it should be later in there program so it should be fitted where the students need information literacy classes. For each one: for the full-time, modular and part-time classes.

Appendix 13 Interview transcripts: Research Methodology Lecturer

1. For background information, what subject(s) do you teach and what other interaction do you have with business students?

I'm involved with the Research Methodology teaching and I work on a one-on-one basis with students helping them to formalise topics for their research; initial phases up to where they are ready to start seeing supervisors to take the topic further.

Interviewer: DO THEY HAND THE PROPOSALS IN TO YOU?

I see their draft proposals which I comment on and afterwards it's between them and the supervisor. In other words: there is a first round where I get involved and I see something in writing and comment on and then they are supposed to take up and further on work with their supervisors.

Interviewer: DO YOU SUPERVISE ANY OF THE RESEARCH?

Yes, from time to time.

Interviewer: BUT NOT A LOT? A COUPLE EVERY YEAR?

Last year about 4. I have about 5 now.

Interviewer: BUT THAT IS THE RECOMMENDED AMOUNT OF STUDENTS TO SUPERVISE?

For faculty they are required to supervise about 10.

John works very closely with students. He teaches MBA students and assists them in the development of their research topic on a one-on-one basis. He has much more contact with students than the librarian's once-off contact session. After the once-off information session it is up to the student to use the library or its services or to make contact.

2. What is your understanding of information literacy?

What is my understanding first of information? Information for a student in an academic institution is, I think, on the one hand theoretical, theory, the availability of theory and perhaps the current debate in a specific field that's part of information. The rest of information is data. So for any research you need information about the theory that you are

doing your research in. You also need data from time to time. Data could be secondary data that you use for your research results and data could also mean literature in the sense of a literature study that you do and data could also be evidence that you need to justify your study to the extent to which something is wrong somewhere, for example: underrepresentation of females in management positions. You will somewhere find evidence to support that and then you can do your study in something like that.

To me information literacy is the ability of the student to know what is information and where I can get it as soon and as efficiently as possible. What are the sources to my disposal and how to access and extract data.

3. In your experience (assessing assignments and supervising theses) how would you describe the MBA's information literacy?

Fairly weak, but there is an improvement. I think students more and more know now where to search for data. I still find them fairly lazy, forgetful, just too busy but there is always something lacking. You get something from the student: you find that the student did not use a lot of information to come to that point. They work on intuition and the sort of what they know, remember and sometime just the class textbooks that they use. But it's improving.

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4. Do you think a once-off information literacy class is sufficient for MBA students?

I think it is not sufficient and also I think it's very early in the program. So by the time when they get themselves into the course perhaps it's already something of the past. They know that they've done it somewhere but it's just....

Interviewer: SO IT'S NOT LINKED TO THEIR STUDIES?

It's not necessarily linked. Ja, and I also must say, I don't think there is actually another place in the course where they should be doing this because they should be equipped from the start to use information. But I just get the feeling that somehow, that maybe, there should be some kind of reinforcement.

5. How would you describe your collaboration in the information literacy education that USB provide?

I don't think there is any collaboration that I know of and of course there should be much more and I think there should be much more emphasis on information in all the assignments that students do so faculty as a whole should know of information and information literacy: what you teach what you try to instil right in the beginning in students and they should actually reinforce that so in each assignment they do. One should actually test their depth of information that they acquire through the assignment and it should be in a way marked or graded or form part or the mark. Students that just write anything from his/her own perspective should be penalised for that. And I think by something like that, the information literacy will be reinforced.

6. Do you think an information literate student can perform and produce better academic results?

Yes, undoubtedly. A person that can play around with information and quickly access more information will perform better than another student, especially in research. Research is about acquiring information and building an argument based on what's available in the domain; in the public domain or in the theoretical domain. So yes.

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7. What would be your ideal in teaching information literacy to MBA students?

I think for me the missing part is what I said before: it's the reinforcement by faculty. If I perhaps look at our own situation where we have quite a big external faculty component teaching the MBA, I think it's difficult. I think its part of the problem; students get away with murder in their assignment; their exposure to external faculty that does not care. As long as students can reiterate what's taught in the classroom, it's enough. On a master's level course it should not be. It should involve that students' ability go beyond that which is taught in the classroom and start integrating that into the assignments and therefore, if that is enforced by faculty, it should force students to keep up-dated and abreast with information literacy.

Interviewer: SO YOU SAID THE ONCE-OFF INFORMATION LITERACY TRAINING IS NOT SUFFICIENT? SO

The training as training is sufficient but I think it does not close the loop. That's the problem.

Interviewer: SO HOW DO YOU THINK SHOULD WE ADDRESS THAT?

Perhaps we can do that via discussion with faculty and maybe work out something to close the loop. So that we must know; faculty must know about the course; the purpose of the course. They must know about the importance of information literacy: not for a student but for a manager. That's what we want to produce. We don't want to produce students that can pass MBA; we want to produce managers that can go out and work with information in their everyday lives. So we must take that to faculty: that kind of vision and make sure that we work out a plan to build information literacy as the course progresses. I'm sure in the 2007/2008 redesign these things were actually discussed but it's never been implemented. Maybe it's time now again, especially now that we are redesigning, to look at that and to make sure that it's not only a good idea somewhere, but one which you implement in day one and somehow it never revisited again.

