A framework to promote workplace information literacy in academic settings: Central University of Technology, Free State as a case study

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i

DECLARATION

I, Jeannet Makasi Molopyane, declare that **A framework to promote workplace information literacy in academic settings: Central University of Technology, Free State as a case study** is my own work and that all the sources used and quoted herein have been acknowledged by a complete reference.

19 May 2014

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Signature   Date

(Ms Jeannet Makasi Molopyane)

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ACRONYMS AND ABBREVIATIONS

ABET	Adult Basic Education and Training
ALA	American Library Association
ANOVA	Analysis of Variance
ANU	Australian National University
ASGISA	Accelerated and Shared Growth Initiative for South Africa
CAS	Chemical Abstract Service
CILIP	Chartered Institute of Library and Information Professionals
CONUL	Consortium of National and University Libraries
CUT, FS	Central University of Technology, Free State
EBIT	Engineering, Built Environment and Information Technology
EBNP	Evidence Based Nursing Practice
EBP	Evidence Based Practice
HOD	Heads of departments
HR	Human Resources
IB	Information Behaviour
ICT	Information and Communication Technology
IL	Information Literacy
ISI	Institute for Scientific Information
ISU	Information Seeking and Use
IT	Information Technology
JISC	Joint Information Systems Committee
KPA	Key Performance Area
KPMG	Kleinveld, Peat, Marwick and Goerdeler
LIC	Library and Information Centre
MANCOM	Management Committee
NUD-IST	Non-numerical Unstructured Data Indexing, Searching and Theorizing
SA	South Africa
SADC	Southern African Development Community
SAQA	South African Qualifications Authority
SCANS	Secretary's Commission on Achieving Necessary Skills
SCONUL	Society of College, National and University Libraries
SEBD	School of Entrepreneurship and Business Development
SET	Science, Engineering and Technology
SPSS	Statistical Package for the Social Sciences

iv

UK	United Kingdom
UNESCO	United Nations Educational, Scientific and Cultural Organization
USA	United States of America
VC	Vice Chancellor

ABSTRACT

What constitutes workplace information literacy is still a subject of research, as evidenced in the subject literature. The need for workplace information literacy is motivated by the challenge that today's workplace faces abundant information and that employees need to be information literate. Without proper information literacy skills, organisations will miss out on competitiveness, sustainability and keeping track with global trends.

Workplace information literacy is regarded as an essential skill for the new knowledge economy and therefore organisations, government and business, and especially tertiary institutions, should harness opportunities to address and promote workplace information literacy.

The purpose of this research is to unfold the concept 'workplace information literacy'. What it proposes to achieve in terms of the literature and data collected so as to develop and present a framework. From the subject literature there is little evidence that workplace information literacy is promoted in South Africa. International literature indicates that some strides have, however, been accomplished in this regard.

The study was conducted using the Central University of Technology, Free State (CUT) as a case study. The university consists of two campuses, namely the Bloemfontein campus and the Welkom campus. The study sought to examine current practices internationally, nationally and the need for workplace information literacy at CUT.

Mixed method research (qualitative and quantitative) was used was used for the study. For interview (qualitative) purposes, a sample of 20 top managers, senior managers and managers was selected. The reason for selecting managers was that they are the university's decision makers. A tape recorder was used to capture the data (4 participated in individual interviews and interviews with committees; there are thus 24 entries in Table 1.3). A total of 200 copies of a questionnaire (as a quantitative data collection instrument) was distributed to lecturing and support services staff, with 136 questionnaires being returned. Only 121 of the questionnaires were completed. The purpose was to determine the workplace-related

information needs experienced by workers, their workplace information literacy skills and abilities as well as current practices at CUT. Opinions were offered as to the importance and value of workplace information literacy for organisations. The need for workplace information literacy was regarded by both interview participants and questionnaire respondents as very important. Training needs were addressed as well as how such training could be conducted. The fact that workplace information literacy should form part of the CUT corporate strategy was also mentioned. From the data collected and analysed, suggestions and recommendations alluded to factors that are important regarding a framework for workplace information literacy. Various intervention mechanisms were suggested in both interviews and questionnaires. The roles that committees could play in ensuring that workplace information literacy is adopted were also stated.

A workplace information literacy framework with related components was developed. The components comprised institutional buy-in, needs analysis, situation analysis, strategic plan, and alignment with corporate strategy including formulation of policy, programme design and development, programme administration, awareness-raising and marketing, and on-going monitoring and evaluation. Each component outlined ways in which it could be implemented.

Key words

Workplace information literacy
Information literate workforce
Workplace information literacy framework
Tertiary education
Academic libraries

TABLE OF CONTENTS

CHAPTER 1: INTRODUCTION TO WORKPLACE INFORMATION LITERACY

CHAPTER 2: WORKPLACE INFORMATION LITERACY: A LITERATURE REVIEW

CHAPTER 3: RESEARCH METHODOLOGY

CHAPTER 4: DATA ANALYSIS AND INTERPRETATION

CHAPTER 5: FRAMEWORK TO IMPLEMENT WORKPLACE INFORMATION LITERACY TRAINING

CHAPTER 6: SUMMARY OF FINDINGS, RECOMMENDATIONS AND SUGGESTIONS FOR FURTHER RESEARCH

LIST OF TABLES

LIST OF FIGURES

CHAPTER 1

INTRODUCTION TO WORKPLACE INFORMATION LITERACY

1.1. INTRODUCTION

The world is gradually progressing towards an information literacy ideology. Information has become a very important resource. It is argued that if information can be appropriately used, it can yield good benefits for people and the community at large (Cheuk & Khoo, 2004; McMahon & Bruce, 2002:14). For example, there is a global trend for organisations to remain above board in terms of competitiveness and sustainability in an environment where they are faced by a number of challenges such as a growing shortage of skilled staff, a growing economy, rapid technological advancements and an increase in tools to obtain information (Goad, 2002). Organisations and workers are also faced with a wider range of methods to access information, a very diverse choice of information, an abundance of information that is often unfiltered, and a general belief that the Internet is the ultimate source of information (Kirton & Barham, 2005; Koski, 2001:483).

The need for information literacy is widely propagated in different contexts, including workplaces and businesses, for example by Cheuk and Khoo (2004), McMahon and Bruce (2002:113), Oman (2001), Rosenberg (2002), Sundin (2005:24-25) and Crawford and Irving (2009).

It has been argued that business success depends on the type of manager who can gather, synthesise, interpret, evaluate and apply the information gathered for presentation (Cheuk & Khoo, 2004). O'Sullivan (2002) argues that information literacy is essential for the new knowledge economy as envisaged by governments, business and the private sector. In spite of the seeming urgency for workplace information literacy skills, it has, however, been discovered that most workers are poorly prepared and equipped to deal with information in their day-to-day business (O'Sullivan, 2002). Kirton and Barham (2005) cite a study done by Kleinveld, Peat, Marwick and Goerdeler (KPMG) in 2000, arguing that without proper information literacy skills, knowledge management initiatives will not elicit desired results irrespective of the available technology. According to them, workers will continue to experience information overload, information anxiety, misinformation, lack of time as well as inadequate technological skills to share knowledge. Goad (2002:189) also reports that workers lack the abilities to locate, analyse and assess the value of information.

1

In the South African context there is also a growing interest and urgency to address information literacy. The South African Government (1998) wrote an Act specifically focusing on skills development (Skills Development Act 97 of 1998). The purpose of this act is to:

- Develop skills necessary for the South African workforce.
- Improve productivity in the workplace as well as maintain competitiveness.
- Improve delivery of social services.
- Provide employees an opportunity to acquire new skills.
- Encourage partnership between the private and public sector to provide education and training in and for the workplace.
- Co-operate with the South African Qualification Authority (SAQA).

This Act is a clear mandate to professionals in different fields of specialty to undertake research to ensure that better service delivery mechanisms are developed that are applicable to the needs of South Africa. The Government has also initiated the Accelerated and Shared Growth Initiative for South Africa (ASGISA), which is aimed at quick skills shortage gap-filling. In her speech on 6 February 2006, the then Deputy President of South Africa, Ms Phumzile Mlambo-Nqcuka, acknowledged that there was a dire shortage of skilled labour, with cost implications for the country's economy (The Presidency, 2006). It was further stated that the country lacked sufficiently skilled managers, artisans and professionals, a situation compromised by the quality of education received (The Presidency, 2006). Information literacy skills are also recognised by SAQA as a competency for people to function effectively and efficiently with information in the information society. A unit standard for information literacy has been registered by SAQA (SAQA, 2006).

Against this background information literacy in academic workplaces seems especially important since it could also impact on the information skills of students and the promotion of knowledge management in a context where managers, leaders of the future, and others are educated. Successful promotion of workplace information literacy skills in such a context would, however, require a framework to guide amongst other things, the identification of information needs and skills required for effective and efficient information task completion.

1.2. BRIEF BACKGROUND ON THE CENTRAL UNIVERSITY OF TECHNOLOGY, FREE STATE

The Central University of Technology, Free State (CUT) is a South African academic institution. It is located in the Free State province and attracts learners from the Free State as a whole, the Northern Cape, Eastern Cape, North West, Western Cape, Limpopo, and

2

Gauteng provinces, and from Southern African Development Community (SADC) countries such as Lesotho and Botswana, as well as from Asian states.

The statistics in Table 1.1 have been provided by the CUT institutional planning office using the 2012 student statistics.

Table 1.1 CUT student statistics (CUT Institutional Planning Office, 2012)

Student Headcount	Calendar Year (2012)
Total	12 675

There are full-time and part-time employees at CUT. These employees include academic as well as support services staff, for example psychologists, web designers and technical staff, to name a few. Support service staff include managerial and administrative staff members. The statistics provided in Table 1.2 indicate the employee profile as it stood in the institutional equity report 2012.

Table 1.2: CUT employee statistics (CUT HR Department, 2012)

Occupational Levels	Male				Female				Foreign Nationals		Total
	A	C	I	W	A	C	I	W	Male	Female	
Top management	0	0	0	0	0	0	0	0	0	0	**0**
Senior management	4	1	0	1	0	0	0	0	0	0	**6**
Professionally qualified and experienced specialists and mid-management	83	13	8	125	36	8	3	122	24	2	**424**
Skilled technical and academically qualified workers, junior management, supervisors, foremen, and superintendents	138	12	0	87	110	30	4	195	5	4	**585**
Semi-skilled and discretionary decision making	396	19	1	82	333	25	0	81	12	8	**957**
Unskilled and defined decision making	0	0	0	0	0	0	0	0	0	0	**0**
TOTAL PERMANENT	**621**	**45**	**9**	**295**	**479**	**63**	**7**	**398**	**41**	**14**	**1 972**
Temporary employees	15	2	0	9	24	0	0	15	0	0	**65**
GRAND TOTAL	**636**	**47**	**9**	**304**	**503**	**63**	**7**	**413**	**41**	**14**	**2 037**

It must, however, be noted that resignations and recruitment of staff are the order of the day.

3

At the time of the study an information literacy programme was offered to the learners as mandatory to all first-year students. Special arrangements are made when there is a need for senior students to attend. A concern is, however, the information literacy of staff, which should be addressed to ensure competitiveness in a challenging global environment as set out in the introduction and implied in the vision and mission statement of the CUT. At the time of conducting the study, there was no formal workplace information literacy programme in place.

1.2.1. Vision

"*The vision of the CUT is to be a globally connected African university of technology that focuses on the needs of Southern Africa and supports graduates for citizenship with skills and competencies in appropriate technologies*" (Central University of Technology, Free State, 2007).

1.2.2. Mission statement

"*In aspiring to fulfil its vision the CUT:*
- *Delivers high-quality appropriate Science, Engineering and Technology (SET) academic programmes supported by applied research*
- *Engages with the community for mutually beneficial development*
- *Promotes access with success in attracting potentially successful students and support them to become employable graduates*
- *Attracts and retains expert staff and supports their development and wellbeing*
- *Forges strategic partnerships"* (Central University of Technology, Free State, 2007).

To enable CUT to fulfil its vision and mission statement this study intends to establish the information literacy needs of staff to efficiently and effectively complete their daily job-related tasks and to propose a framework for the promotion of information literacy applicable for an academic workplace setting such as CUT.

This chapter comprises the following:

- Research question.
- Sub-problems.
- Purpose of the study.
- Relevance to the field of research.

- Literature review.
- Research methodology.
- Data collection methods.
- Clarification of concepts.
- Division of chapters.

1.3. RESEARCH QUESTION AND SUB-PROBLEMS

In light of the argued need for workplace information literacy, and the fact that this might be a need for staff at CUT, the research question is formulated as follows:

What should a framework to promote workplace information literacy in academic settings entail?

To address the research question, the following sub-problems are dealt with:
- What is information literacy and workplace information literacy?
- Why is information literacy important in the workplace?
- What efforts have been reported on promoting information literacy in the workplace?
- What are the current practices at CUT with regard to information literacy in the workplace?
- What are the needs for workplace information literacy at CUT?
- What does an information literacy framework need to address in an academic setting such as CUT?

1.4. PURPOSE AND AIM OF THE STUDY

The study intends to investigate the proposal of a workplace information literacy framework in academic contexts that, apart from its use at CUT might be used as a point of reference for other academic institutions, organisations, the private sector, and the public sector when addressing the information literacy skills of their employees.

Such a framework can also serve as guideline for the national government to develop an information literacy policy that will see to it that it is a prerequisite for every employee and prospective employee to become information-literate in order to be considered for employment and promotions. This will alleviate the problem of producing graduates who are not well equipped and have to face a workforce in which information explosion and overload is the order of the day, and who often do not understand or value the importance of

5

information literacy (Bellevue Community College, 2003). In such a context information literacy could support the ideal workforce working forward to the knowledge economy within the global arena with global growth and sustainability in mind.

To substantiate the above-mentioned statement, efforts by the United States of America (USA) Government should be noted. They have taken a step further to ensure that information literacy is a compulsory skill to be considered for employment by making sure that it falls under the US Labour Secretary's Commission on Achieving Necessary Skills (SCANS) with the basic intention of supporting the country's economy with skills, high wages and guaranteed employment (Cheuk & Anderson, 2002; Winterman, Skelton & Abell, 2003).

It has also been reported that The British Council and Information Management Services is working closely with the Director of Knowledge Management in order to define the information literacy needs of the British Council (Winterman *et al.*, 2003).

The workplace information literacy framework intended in this study should be able to help in putting South Africa on par with countries such as the USA and Britain, as well as with initiatives in Australia (Bruce, 1994; Cheuk & Anderson, 2002; Winterman *et al.*, 2003).

1.5. MOTIVATION FOR THE STUDY AND ITS CONTRIBUTION TO THE RESEARCH FIELD

Organisations and enterprises worldwide are running their businesses in terms of intellectual capital, knowledge management and learning organisations. According to Goad (2002:1), these concepts can well be achieved in cases where the workforce is information-literate and has the right information literacy skills.

Oman (2001) recommended that organisations and businesses must employ people who know how to deal with information for both personal as well as work success. It is stated in Cheuk and Anderson (2002) that research should be conducted to demonstrate the manifestation of information literacy in the workplace settings and how productivity increases as a result. This global trend is gaining ground in South Africa as documented in Fourie and Claasen-Veldsman (2006), who conducted research in two South African medical settings to emphasise the need for workplace information literacy skills of oncology nurses in which it was pointed out that current awareness services could be used as a time-saving information literacy tool.

In addition to what is already known with regard to information literacy skills for students and in school contexts, the study will be able to contribute to the still developing field of workplace information literacy with a currently limited literature base. Detailed information on workplace information literacy will be fully discussed in Chapter 2.

1.6. LITERATURE REVIEW

The purpose of this literature review is to give an overview of the research and other activities that have been conducted in the field of workplace information literacy in as far as findings, strategies applications and recommendations are concerned.

Oman (2001) managed to sketch the importance and value of workplace information literacy. It is apparent that Oman (2001) did not conduct a study as such but made recommendations for an information literate workplace. The following elements were of importance to Oman (2001): information infrastructure, demographics of employees and information literacy competencies. The recommendation for workplace information literacy included corporate guidelines, and policies and procedures around information management. Oman (2001) further indicates that the following points have an impact on the information-literate workforce and for organisational success: geography of the organisation, roles and responsibilities, language, education and the use of information in personal life.

Oman (2001) has conducted useful work on workplace information literacy. Mention is made that organisations and enterprises lack the infrastructure to support the development of the information literacy skills of its labour force. According to Oman (2001), program branding within the workplace setting is important; concepts like information competencies, information proficiency and information power are very desirable for a corporate world.

An independent study was conducted by Cheuk (1998) on the information literacy skill applications of workers. In this study Cheuk (1998) studied eight auditors and eight engineers. The purpose of the study was to develop an ISU (information seeking and use) process model, which was intended to be meaningful in real-life application. The subjects' work experience ranged from one to five years. The reason for the selection of these fields is that they have long been regarded as fields for knowledge workers. Cheuk (1998) therefore deemed it fit to study these groups in order to get an insight into how people seek and use the information for daily job application.

- For the auditors, the purpose pointed out by the study was to ensure that audited companies are in place and no fraud is taking place.

- For engineers it was to ensure that manufactured products are up to standard and customer satisfaction is reached.

The scope of the study reported by Cheuk (1998) was centred on audit assignments and engineering projects. The participants were brought on board as to what the interview proposed to elicit. A consent form was signed by each participant. An unstructured and in-depth interview was conducted per individual, each lasting ninety minutes. The interview consisted of a warm-up session, an in-depth interview and a post-sharing session. The interview questions depended on the flow of the interview, and the interview finished when all the questions had been answered. Qualitative data analysis software titled NUD-IST (Non-numerical Unstructured Data Indexing, Searching and Theorizing) was used to analyse the data. An ISU (information seeking and use) process model of seven different situations was discovered in the workplace. It was also discovered that there is a correlation among the different information situations. Participants relied heavily on readily available information. It is stated that in the ideas confirming and rejecting situations, specific authoritative information was used (Cheuk, 1998).

O'Sullivan (2002) also hinted at the value workplace information literacy could add to organisations by saying that information literacy is a new economy set of skills and as such a solution to information overload. According to O'Sullivan (2002), information literacy appears in very few boardroom agendas, and if it does, it appears under a different name. The argument is continued by stressing that considering the bigger picture of organisations and the daily reality of workers, practical evidence of the need for workplace information literacy is offered (O'Sullivan, 2002). According to O'Sullivan (2002), information literacy is a soft skill which is difficult to define, and should be the core attribute demanded by human resource departments as a prerequisite during staff recruitment.

Ruff (2002) discusses the issue of information overload in some detail. Information overload can bring about information fatigue syndrome in workers, which can again impact on an individual as well as the organisation. Akin's (1998) overview of what information fatigue syndrome entails, mentioned that poor decision making will be the result as employees will struggle to make information related decisions. One can state that the condition stated above can be alleviated in the case of an information-literate workforce.

A recommendable workplace information literacy strategy is reported by the Australian National University (ANU Human Resource Department, 2004). This institution has made information literacy one of the most important skills and prerequisites during staff

recruitment. It has guidelines which are set out as standards by the Human Resource department for the specifications of the jobs that need to be filled. In order to assist in keeping up with the rich environment of information resources available at the university, the standards required include information literacy. The guidelines were developed to assist supervisors and selection committees at the university. The committees are requested to test the claims by interviewees that they indeed are information literate. At the ANU, information literacy is also included in the duties and job descriptions of new recruits, including academic posts. To cut down on training costs, the ANU invested considerable resources to ensure that the staff live up to the expectations and standards set out by the university's Human Resource department, and by availing a campus-wide initiative to promote information literacy. The university has a campus-wide information literacy programme for staff and students (ANU Human Resource Department, 2004).

In addition to the Australian National University, Bruce (1994) also reports on the staff information literacy programme of the Griffith University. At the time they had a staff development strategy for information literacy which was not enforceable. The reported staff information literacy programme aimed at enabling staff to update their skills on a regular basis; ensuring that through staff, information literacy is enforced into the academic programmes; supporting staff to design their teaching strategies inclusive of information literacy; ensuring that programmes offered have the interest of information literacy at heart; and supporting staff in meeting their teaching responsibilities, and in developing expertise.

Bruce (1999:33) highlights that workers are faced by information technology, the need to be able to solve problems and to also make genuine decisions. This calls for urgent attention to proper information identification, retrieval and application through the available technology.

Bruce (1999:33) argues that organisations need to ask themselves the following questions:
•	What information does the company need?
•	How should it be accessed?
•	What will the impact of the new information be?

One may also add that this should not be the sole responsibility of companies but should also include institutions, public service and other organisations such as academic institutions in order for them to thrive in this competitive knowledge economy. Bruce (1999:34) goes on to emphasise that information literacy should not be separated from computer literacy, because computer literacy without information literacy is incomplete in itself. Bruce (1999:33-47) especially expressed support for the following staff development needs:

- Management recommendations for staff professional development and organisational change.
- Organisations wanting to train their clients to be able to utilize the information they make available.
- Educators needing to prepare their learners for professional paths.

This is in line with the work of the Australian National University and some of the sentiments expressed here (Bruce, 1999:33-47; ANU Human Resource Department, 2004).

Cheuk and Anderson (2002) reflect on an information-illiterate workforce and the financial implications involved. According to them it can be very costly for a business to have a workforce that is not information literate. Following their argument that current work settings require a type of worker who can manage and use information delivered through different channels, they argue that workers should also be able to transfer the information using the same channels. They conducted a study within Singapore, Hong Kong and the USA contexts in 1998 which found that people are drowning in the sea of information they are not able to use. Workers have not necessarily equipped themselves with the necessary information literacy skills to face the challenges and opportunities offered by information (Cheuk & Anderson, 2002).

According to Cheuk and Anderson (2002) organisations should be able to evaluate the cost, value and the effectiveness of information applied to tasks.

From the preceding, very brief review of the literature, concern for large sections of the existing workforce either not being information-literate or not sufficiently information-literate and being left with limited opportunities to equip themselves is noted (Cheuk & Anderson, 2002). Embarking on a full-scale implementation of workplace information literacy is also hampered by business leaders themselves not being familiar with the term, and being unable to specify the information literacy training needs. It is argued by some that the concept of workplace information literacy should gradually sink into the workplace routines (Cheuk & and Anderson, 2002; O'Sullivan, 2002) and that it cannot be achieved overnight. Although much has been written about information literacy pertaining to higher education, schools and public libraries, there is relatively little on information literacy in the workplace (Kirton & Barham, 2005). According to Kirton and Barham (2005), the information needs of workers and students are not the same. The information needs of workers are work-centred whereas the information needs of students are academically oriented. This implies that the workplace information literacy programme will not be exactly the same as the one offered to

10

students by tertiary institutions. They suggest that adult learning theory should be applied whereby learners' needs, discussion forums and practical exercises should serve as bases for the delivery of information literacy programs to an adult clientele. According to Kirton and Barham (2005) workplace information literacy should be contextualised. In other words it should be structured in such a way that it implies the terminology of that particular workplace jargon and specifications. Kerka's (1997) argument of information literacy as a vocational skill dealing with "how to do" also needs to be noted.

Research on workplace information literacy was also undertaken by Lloyd (2005). Lloyd's (2005) research (as part of a doctoral thesis) centred on information literacy skills applied by fire fighters based at the New South Wales fire brigade. Interviews were used to collect data from twenty members of the brigade from three platoons. This was supplemented by observations. The reason for the use of both interviews and observations was that the data collected, could be discussed freely with the participants so as to negotiate their experiences, what they went through as well as any additional information that could come up. The data was analysed by a constructive grounded approach. According to Kerka (1997:2) the constructive grounded approach suits studies on workplace learning. Kerka (1997:2) mentions that the constructivist approach works more efficiently if it is embedded into a context that can be useful in applied skills.

It is evident from the brief literature review that it is urgent that a framework for workplace information literacy needs to be designed, particularly keeping in mind the South African situation. This can ensure a complete and full proliferation of information literacy into the South African workforce. It is important that the global trend towards workplace information literacy that grows with an accelerated pace should also be included as one of the essential skills for the South African labour force so as to maintain a sustainable participation on a global competitive level. Apart from support for the urgency of such a project, the literature consulted seems to offer sufficient guidelines to embark on such a study.

1.7. RESEARCH METHODOLOGY

The study entails a literature survey as well as an empirical component. The literature survey covers aspects such as the concept of workplace information literacy, existing programmes that are reported, as well as studies conducted in this regard. These form the backbone of the empirical component to collect data relevant to Central University of Technology, Free State (CUT).

For the empirical component, data need to be collected on the following:

- Current practices at CUT concerning academic information literacy and workplace information literacy.
- Information needs and effective and efficient job-related task completion.

Mixed method research, which is a combination of both qualitative and quantitative research approaches, is used in this study.

1.7.1. Data collection methods and participant sample

Both interviews and copies of the questionnaire were used for this study. A specific interview technique known as the free attitude interview technique designed by Meulenberg-Buskens (1993) was used in this study. It is documented that this method has been derived from a Dutch term "Vrije Attitude Gesprek". This type of interview method was developed as a characteristic of industrial psychology research. The Meulenberg-Buskens (1993) study discovered that when interviewees are given the freedom to speak, positive and desired feedback is elicited. It is also referred to as a useful qualitative research tool (Meulenberg-Buskens, 1993). With this technique, uttered statements are negotiated so as to guarantee reliability and validity. The interviewer's attitude is very important as it has to be inviting. Mention is made that this method is applicable to two person interviews as well as group interviews. This approach requires the interviewer's unconditional positivity throughout the interview. It is through interviews that self-reflection, confession, examination and self-knowledge of participants are encouraged (Alvarez, 2002:88).

The purpose for choosing the free attitude interview technique is that it is designed to collect data from interviewees through participation and reflection. It employs verifying and validating the data collected from participants. The participants should be completely relaxed. Kvale (1996:5) explains: "*Through conversation we get to know other people, get to learn their experiences, feelings, and hopes and the world they live in*". This is a way for the researcher to be able to understand what people say in their own words and also for them to air their opinion. For feedback from people participating in interviews, the term "participant" (also known as research participant) is used. A research participant can be explained as "…*a living individual about whom an investigator obtains (1) data through intervention or interaction with the individual* …" (American Evaluation Board, 2005:353). For feedback from questionnaires, the term "respondents" is used. A definition is provided by Koontz (1998:17), as, "*A person who is asked for information using either written or verbal questioning, typically employing a questionnaire to guide the questioning*".

A consent form was handed out to each interviewee and respondent to give their input and to ensure them of the confidentiality, that they had the right to withdraw at any time and to obtain their written consent.

1.7.2. Motivation for the selection of the sample

From the total of 2037 employees, 20 top managers, senior managers and managers (including members of four committees) were selected for interviews to collect data. Two more members of committees were interviewed via email because they could not be available for face-to-face interviews due to reasons unspecified. They requested that the questions be sent through e-mail. (Four participants participated in individual interviews and interviews with committees; there are thus 24 entries in Table 1.3.) A copy of two hundred questionnaires was distributed to staff members. Participant and respondent selection is reflected in Table 1.3.

The selection of the respondents and participants was based on convenience and purposeful based on the researcher's perception of the level of influence they could play in the workplace information literacy programme design for CUT. It was done to identify a purposeful, convenience sample. It must be noted that there are other committees at CUT such as senate, Mancom (Management Committee) institutional forum, etc. Mention has to be made that at the time of the study, institutional restructuring was taking place; therefore some portfolios and committees were changed. Twenty people participated in the interviews (4 participated in individual interviews and interviews with committees; there are thus 24 entries in Table 1.3).

Table 1.3: Research respondent and participant selection

Human resources division including, managers, senior and junior personnel	Individual interviews: • 1 Senior director from Human Resources • 1 Deputy director from Employee Training and Development • 1 Director from Employee Relations **Questionnaires** • 20 Assistant Human Resources staff

Academic division including four faculties	Individual interviews
• Faculty of Humanities • Faculty of Health and Environmental Sciences • Faculty Management Sciences • Faculty of Engineering and Information Technology	• 2 [1]Research professors • 1 Faculty dean • 3 Programme heads/heads of departments **Questionnaires** • 100 lecturers
Support services including heads from the following divisions and subdivisions selected • Resources and operation • Community development • Office of the registrar • Finance office • Institutional Research department • Student support • Administration	**Individual interviews** • 1 Deputy Vice-Chancellor: resources and operations • 1 Community developement manager • 1 Registrar • 1 Deputy Registrar: Academic Affairs • 1 Deputy Registrar: Student Affairs • 1 Assistant Director: Finance • 1 Research Dean • 1 Student support manager • 1 Faculty administrator **Questionnaires** • 80 Junior staff members
Individual members of committees were approched on behalf of the committees included: • Research committee • Library committee • Institutional forum committee	**Committee interviews** • 2 members • 2 members • 1 member

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[1] Research professors are titles used by the Central University of Technology, Free State

• Institutional equity committee	• 1 member

It must be noted that for committee interviews, a member stood in for two committees which are the institutional forum and institutional equity.

1.8. CLARIFICATION OF CONCEPTS

The following section deals with the definition of concepts used in this study.

1.8.1. Information literacy

Information literacy has been defined as the ability to realise when information is needed, to be able to locate the information, and to apply and evaluate the information effectively (Shuva, 2005). This given definition is repeated by Bruce (1999), Oman (2001) as well as O'Sullivan (2002). Quoting the Chartered Institute of Library and Information Professionals (CILIP) verbatim, information literacy has been defined as "…*knowing when and why you need information, where to find it and how to evaluate, use and communicate it in an ethical manner*" (CILIP, 2008). The American Library Association (ALA) (1998) defined information literacy by saying that in order for a person to be considered information literate, that person must be able to recognise when information is needed, and must be able to locate, evaluate and use the needed information effectively (ALA, 1998).

For the purpose of this study, the standard definition as used by the ALA (1998) is used as the core definition relating to the endeavoured outcomes of this study.

1.8.2. Information literacy in the workplace context

Workplace information literacy has been defined as a set of abilities whereby employees recognise that they need information, are able to locate, organise and use the information effectively, and are able to present information accurately to the intended recipient (Cheuk & Anderson, 2002). Cheuk and Khoo (2004) defined information literate workers as those having a range of skills in finding and presenting information.

Although they do not offer a formal definition, Kirton and Barham (2005:365) implied the meaning of workplace information literacy by stating that within workplace settings information literacy implies the "*appreciation of the need for information, to attain the skills to*

15

locate, organise and evaluate information and effectively use the information to solve problems, make decisions, create new knowledge and supply the information to others".

For the purpose of this study the definition as offered by Kirton and Barham (2005:365) and Weiner (2011:297) seems to be the most applicable one. However, the specification "*as it applies to job related tasks*" is added to position this definition explicitly as a definition of workplace information literacy.

One author, Takenouchi (2004:4) referred to computer literacy as mechanical information literacy. Computer literacy is often stated as a prerequisite for information literacy (James, 2010; Haydn & Barton, 2008). This prerequisite is supported by Fourie and Krauss (2011:303), reporting on the training of a group of teachers in rural South Africa where they addressed a combination of ICT skills and information literacy skills.

For purposes of this study, computer literacy is accepted as a component of workplace information literacy that serves as prerequisite for some information literacy skills, and certainly for those involving the use of electronic information resources.

1.9. DIVISION OF CHAPTERS

CHAPTER 1: Chapter 1 consists of the following: introduction, a brief overview of the study, the research problem and aim of the study, literature review, and explanation of research methodology. A brief description of each chapter is outlined. Operational concepts are also defined.

CHAPTER 2: Chapter 2 consists of the following: introduction, literature study and analysis, description of literature findings with regard to workplace information literacy needs analysis, reports from case studies on the implementation of workplace information literacy programs and findings from research on workplace information literacy.

CHAPTER 3: Chapter 3 focuses on the methods used to gather and analyse data. The reasons for selecting the methods are also discussed. This includes a mixed method research approach based on interviews and questionnaires, collecting qualitative and quantitative data. The selection of respondents is also dealt with.

CHAPTER 4: Chapter 4 focuses on data analysis, interpretation of the findings from the data collected, evaluation of the data collected as well as the effectiveness of the data collection instruments and techniques.

CHAPTER 5: Chapter 5 covers the findings on the requirements of a workplace information literacy framework, as well as recommendations as a result of the interpretation, analysis and evaluation. This includes recommendations and interventions mentioned by the interview participants and questionnaire respondents. The framework also covers how such interventions can be evaluated.

CHAPTER 6: Chapter 6 gives the essence of the entire study. It summarises how each chapter evolved and lessons gained from each chapter. It demonstrates how the problem statement raised in Chapter 1 and the sub-questions have been addressed. Recommendations for further studies as well as pitfalls to consider are also addressed in this chapter.

CHAPTER 2

WORKPLACE INFORMATION LITERACY: A LITERATURE REVIEW

2.1. INTRODUCTION

This chapter offers an overview of the literature on workplace information literacy, as a field of growing interest and popularity. The focus is on what basis workplace information literacy in the public, academic and private sectors has achieved so as to influence its implementation and application within the South African setting, using Central University of Technology, Free State (CUT) as a case study. It also considers reports on workplace information literacy, the focus of studies on workplace information literacy, gaps in existing practices and attempts, what can be learnt from reported research results, methods used in research, and opinions on the development of policies and guidelines to promote workplace information literacy. This chapter serves as basis for the empirical component (discussed in Chapter 3 and Chapter 4) and recommendations for a framework for workplace information literacy (presented in Chapter 5).

2.2. THE NEED FOR WORKPLACE INFORMATION LITERACY

The challenge for this study is motivated by findings in a study conducted by Heylighen (1999) that, change constitutes itself rapidly in the sense that no one can cope with the need for constant re-education. It is noted that even the most intellectually advanced groups, find these rapid changes overwhelming (Heylighen, 1999). Organisations find that their environments are being faced by rapid and radical change and as such survival depends on the sustainability and will to change (Xue, Majid & Foo, 2010). Successful organisations have to be fast-moving to keep up with the fast-moving global markets (Abell, 2000:33). It is important for a country to remain above board in this competitive global economy.

Bober (2011) and Goad (2002:189) support the views of Heylighen (1999) by stating that most workers are poorly equipped to deal with information in their day to day activities. Borrowing from employee skills literature in research undertaken by the American Management Association, it was discovered that one third of job applicants did not possess the required literacy skills, as picked up by the job entrance tests many organisations have put in place. A cost of two billion dollars was estimated as cost to business for employees' training needs in general. Workers made mistakes, missed opportunities and even carried out tardy work with financial implications. As a result of the importance of information in the

18

completion of daily tasks, Cheuk and Anderson (2002) advocate that ways should be found on how to recommend illustrative ways of workplace information literacy to business leaders so as to foster an information literate workforce as well as conducting research on how workplace information literacy can be manifested in the workplace setting effectively. They conducted a study in Hong Kong, Singapore and the United States, and ideas of how workplace information literacy could manifest itself were borrowed from knowledge management. The selection of best practices on implementing workplace information literacy were studied including factors that could hinder it in order to support the creation of a climate conducive for knowledge workers (Cheuk & Anderson, 2002). The need for workplace information literacy can also be deduced from the following discussions on the characteristics of knowledge workers (i.e. people who are assumed to be information literate), some of the realities people face in the workplace, as well as the seven phases proposed by Bruce (1999) for a framework for workplace information literacy.

From the literature the following were stated as being characteristics of knowledge workers:
• Academically skilled
• Methodologically competent
• Part of a team
• Creative
• Information literate (Skagen, Blaabjerg, Torras & Hansen, 2006:2).

This is important in affording candidates a job competitive advantage and edge as it fits well with the characteristics of a competitive knowledge worker (Lloyd, 2011; Skagen *et al.*, 2006).

Organisations acquire information so as to improve their own products and to strategise against competitors' products. Benchmarking is carried out during sales and output so as to predict demand and as such companies, organisations and institutions need to reengineer their business processes so as to meet the needs of their clients (Bird, Crumpton, Ozan & Williams, 2012; Kirton & Barham, 2005:366). What has to be stated is that higher education institutions are also in business as they are selling different education products and as such can play a significant role in the proliferation of information literacy in work settings.

Bruce (1999) argues that professional employees are gradually sinking into the information literacy ideology with the following information literacy realities to confront:
• Management recommendations for staff professional development and organisational change.

- Organisations wanting to train their clients to utilise the information they make available.
- Educators expected to be able to prepare their learners towards professional paths.

Bruce (1999) suggested a framework for workplace information literacy consisting of seven phases each with its own characteristics. The phases include:

- Using information technology for information awareness and communication.
- Finding information from appropriate sources.
- Executing processes.
- Controlling information.
- Building up a personal knowledge base in a new area of interest.
- Working with knowledge and personal perspectives in such a way that novel insight is gained.
- Using information wisely for the benefit of others.

Noting the arguments on the need for workplace information literacy, the empirical component attempts to determine interpretations of the need for workplace information literacy in the context of a South African tertiary institution, namely CUT (Central University of Technology, Free State).

2.3. WORKPLACE INFORMATION LITERACY CHALLENGES

Various arguments can be noted from the subject literature on the challenges faced by workplace information literacy and the implementation of programs addressing it. Winterman *et al.* (2003) stress the fast movement and vast scope of information that is available and shared, and that employees thus should be able to sort, evaluate and apply it. These represent the spectrum of skills and abilities that should be mastered with regard to workplace information literacy. Winterman *et al.* (2003) also mention a concern which should be taken seriously to ensure the successful integration of information literacy skills into the workplace. The argument is that since the term information literacy is new in the workplace, it does carry some challenges as to how it should be implemented. It is felt that the connotative implication attached to the concept of workplace information literacy implies the following:

- Should managers initiate information literacy, to employees, it would imply that they are poorly skilled.
- The workplace information literacy skills component should be well defined, including the finer details.

- Information literacy training intervention mechanisms should be put in place.
- The programme should be linked to other training programmes to be effective.

In order for information literacy to be embedded into the daily workplace, it has to become a way of life (Winterman *et al.*, 2003). Harvey and Norman (2006), Kirton and Barham (2005), Lloyd (2011), Winzenried (2011) and Wu (2012) also support the need for workplace information literacy as part of the daily workplace exercise. Their point of view is that applicable methodologies should be identified which will be able to support information strategies within the workplace. This is encouraged in the sense that the authors feel that what is practised in higher learning should also be practised in the work environment as it would contribute to continuous learning. Kirton and Barham (2005) refer to information literacy as research skills which they advocate must be part of the work environment. Workplace information literacy is considered to be part of applied learning. It is argued that workers are specialists in their fields of specialty and as such action research methods should be part of the workplace skills as it involves information literacy. This is seen as a path towards independent workplace learning encouraging research with the opportunity towards improvement and development (Harvey & Norman, 2006; Kirton & Barham, 2005). According to this argument, workplace information literacy programmes should also be aligned with independent workplace learning.

Harvey and Norman (2006) and Travis (2011) state that workers can prove to be reliable researchers as they do have the experience and better understanding of how jobs are carried out. The authors argue that research that produces books is not sufficient. According to them action learning will be the birth of workplace information literacy as it supports, finding out, researching into, as well as what is currently happening in one's field of specialty. They consider action learning as a tool towards skills acquisition with the sole intention of wider application (Harvey & Norman, 2006; Sokoloff, 2012). The challenge here would thus be how to align workplace information literacy with action learning in workplace.

It is mentioned in Lambert (2003) that companies, organisations and institutions tend to focus more on information literacy as most work processes are technologically based. Lambert (2003) further states that some companies do their own in-house training while others opt for consultants to do information literacy training. It is also noted that the saved cost resulting from an information literate staff member is a little complicated to arrive at but the results of an information literate workforce are certainly tangible. Lambert (2003) quotes an executive, Stephen Tweed, as saying, "*Information literacy is becoming more critical as more information becomes accessible only via technology tools*". One participant in the

21

research conducted by Lambert (2003) had this to say about business information literacy, "*benefits get higher over time*". It is also indicated that knowledge on its own is not power but potential, and that employee training is necessary so as to alleviate the loss of time and money. It seems as if there is a close link between skills in information technology and workplace information literacy, and somehow it seems that the investment in ensuring an information-literate workforce is worthwhile and needs to be addressed (Fourie & Krauss, 2011:303).

According to Lambert (2003), training should start first with key leaders and executives in the company. Such training should bring about creativity amongst employees with the sole purpose of organisational growth and development. The challenge would thus be to identify such leaders and to align workplace information literacy with creativity.

2.4. APPLICATION STRATEGIES SUGGESTED IN THE LITERATURE

A number of strategies and issues to consider when planning and implementing workplace information literacy programmes are offered in the subject literature. Macoustra (2003:8) stated that an information literate executive will ask the question "*what information do I need to perform my task?*" rather than, "*… now that I have this information what task can I do?*" A recommendation is made to the effect that workplace information literacy should be introduced as a knowledge management initiative and that organisations can save money with the use of research skills by employing better trained personnel.

In order for organisations to determine the information literacy levels of their employees, the first step is to compile an electronic questionnaire for new employees. The questionnaire results make it possible to determine group division according to level of expertise and job performance satisfaction. This will, however, only be possible if there is allowance for need assessment in the questionnaire (Macoustra, 2003:8).

Macoustra (2003:8) further suggested that a training programme be designed to train the trainers who will be responsible to train new employees as well as being responsible for continuing education within an organisation. Macoustra (2003:8-9) recommends an induction course for new employees whereby introduction to the available databases and applications to their job is carried out. It is noted that for the training to be effective it is imperative that a hard copy with some quick reference is provided to the trainees with indications as to how and where one gets information within the organisation as well as for future reference. The

22

training references, it is mentioned, should be laminated so as to avoid them getting damaged and lost (Macoustra, 2003:9).

The most important part the library should play according to Macoustra's (2003) suggestions is to ensure that workers are able to know which resources are most useful for what situations, how to retrieve timely and reliable information, analyse the result and avoid information overload (Macoustra, 2003:9; Travis, 2011).

Workers should also be trained on how to refine a request so as to get enough and precise results to get adequate answers. Information on useful websites can be circulated within the organisation whereby people can look for quality information in order to perform their tasks (Macoustra, 2003:9). The suggestions of Macoustra (2003:9) complement the findings of Conroy (2006:3-6) and Donnelly and Craddock (2002) that vigorous training of the use of resources will empower personnel whereby they might even recognise their own shortfalls.

From what was argued by Conroy (2006:3-6), Donnelly and Craddock (2002) and Macoustra (2003:9), elements of a framework could be deducted. According to these authors the following need to be considered when planning a workplace information literacy programme:
- Workplace information literacy training needs.
- Identification of participants.
- Survey and questionnaires before the design of a programme for workplace information literacy.
- Training venue.
- Training duration.
- Training schedule.
- Training toolkit and materials.
- Self-evaluation tool.
- Incorporating information literacy with IT.

A more elaborate discussion will be offered in Chapter 5 of this dissertation.

O'Sullivan (2002) presented the following recommendations for issues to consider for an information literate workforce:
- Time management (an information literate workforce can make better decisions faster through intelligent information use).
- Information retrieval skills (for example good classifying, storing and information manipulation skills).

23

- Networking (i.e. gathering information from personal sources).
- Information sharing.
- Team work (including understanding the legal implications of using other people's information).
- Problem solving (i.e. using information effectively to achieve a purpose).

According to Bruce (1999), technology should be of concern but employees' ability to deal with information should be considered to be of primary importance. Bruce (1999) and Xue *et al.* (2010) advocate that information literacy in workplaces should play an important role in corporate operational strategies like:

- Environmental scanning.
- Information management.
- Acquiring corporate memory.
- Research and development.
- Professional ethics.

In the following sections, as part of the literature review, the need and uses of workplace information literacy as well as its importance are explored using the following settings:

- Private sector.
- Academic sector.
- Public sector.

For the purpose of this study, academic setting is used as the focus area.

2.5. IMPLEMENTATION OF WORKPLACE INFORMATION LITERACY: SELECTED CASE STUDIES

It is appropriate at this stage that efforts dealing with implementing workplace information literacy are discussed. Brief discussions and examples on private, academic (i.e. higher education) and public sectors are offered in the following sections.

2.5.1. Private sector

The nature of conducting business has changed in a way that business is no longer self-contained but a network of globally connected enterprises (De Saulles, 2007:68; Lim, 1999; Rosenberg, 2002). Big businesses have long been active in global business exchanges and even small businesses are also joining the flow. The challenges facing small business

without professional information specialists is that employees are expected to attain a higher level of information literacy. They have to be multi-skilled to fulfil the role of an information specialist since in most cases small businesses do not have their own libraries (Rosenberg, 2002).

According to De Saulles (2007:68) and Rosenberg (2002), it is necessary for employees from small businesses to be information literate since they do not have the resources to centralise the enterprises' information services as well as the right infrastructure. This view is supported by Lambert (2003). Employees in smaller businesses are therefore compelled to be information literate to benefit from business growth. One can even find new employees being computer literate but not information literate and that it takes time for them to get used to the enterprises infrastructure (Lambert, 2003). At times a great deal of extensive training may be necessary (Lambert, 2003; Rosenberg, 2002).

2.5.2. Higher education

Within higher education, research on workplace information literacy is still being conducted and suitable methodologies are being identified (Harris*,* Mackenzie, Makin, & Young, 2004). Researchers like Bruce (1999), Lloyd (2010) and SCONUL (2011), Webber and Johnston in Walton and Pope (2006) are discussing efforts to implement workplace information literacy programmes in academic settings to be considered by other higher education institutions. The study focuses on how workplace information literacy can be implemented with a university being a workplace setting. The discussion on the universities employing workplace information literacy is portrayed in section 2.6.1 to support the argument stated here.

2.5.3. Public sector

There are reported efforts by the public sector also making strides into research related to workplace information literacy initiatives (Al-Daihani & Rehman, 2007:614; Chou, Chen & Pu, 2008:251-265). Studies reporting on this are elaborated on in section 2.6.2.1 and section 2.6.2.2 of this chapter.

2.5.4. Private, public and higher education partnerships

There are sometimes partnerships in workplace information literacy initiatives. This is demonstrated by a workplace information literacy initiative that was conducted in a project based on the co-operation among Dr Martin Luther King JR library, San José State

University and the city of San José. It is mentioned in Somerville and Yusko (2008:366) that workplace information literacy succeeds very well where there is a team effort. A project for a virtual web 2.0 education initiative was rolled out in 2006. The benefit of the project was that staff developed web 2.0 competencies. A course was also designed to this effect. Information was shared timeously and transparently and this boosted decision making (Somerville & Yusko, 2008:366). In this project a task team was formed (Somerville & Yusko, 2008:366). Over a hundred city and university library staff members took part. Twenty three web 2.0 tools were included in the training package that constituted the programme. Participants conducted web 2.0 pilot projects like having library blogs, whereby they could have discussions with clients, and wikis, where they could share information with their clients as well as professional development to support organisational learning. Information literacy strategies were implemented so that experienced challenges could be resolved (Somerville & Yusko, 2008:367).

2.6. ORGANISATIONS EMPLOYING WORKPLACE INFORMATION LITERACY AS PART OF ORGANISATIONAL STRATEGY: SELECTED CASE STUDIES

The following discussions look into what each sector has managed to achieve in implementing workplace information literacy. This is done by means of selected case studies that are reported.

2.6.1. Higher education sector approach to workplace information literacy implementation

Within the higher education sector, the following institutions were used as points of reference, the reason being that when conducting the literature search, these universities featured strongly:
• Australian National University.
• Griffith University.

For an employee to be considered for employment at the Australian National University, that employee has to be information literate or be prepared to undergo information literacy training (ANU Human Resource Department, 2004). What is very important is that, the university has made information literacy part of the skills essential for employment. The university has made some guidelines available, set forth as standards by the university's Human Resources division, that for every job that needs to be filled, information literacy should form part of the package (ANU Human Resource Department, 2004). The intention of

26

the guidelines is that the standard of the rich information environment should be maintained. There are selection committees which consist of deans, heads of areas and directors available to deal with standards for information literacy. The responsibility of the committee is to test claims made by job applicants if indeed they are information literate. Information literacy is included in the job description of all the new recruits, including all academic posts. A considerable effort is made by the university to ensure that staff live up to the expectations and standards. The university has made a campus-wide information literacy programme for students and staff available. It is mentioned that the initial requirement for this information literacy programme was to cut training costs for the institution (ANU Human Resource Department, 2004). According to a recent search for information on the programme, it appears that the ANU workplace information literacy programme is still compulsory but has apparently been outsourced.

In Bruce (1994) it is reported that the Griffith University also follows a similar pattern to implement workplace information literacy programmes. Although it has a staff development strategy for information literacy, it is, however, not enforceable. At the time of Bruce's (1994) report, the staff information literacy programme was aimed at the following:

- For staff to update their skills on a regular basis.
- To ensure that through an information literate staff, information literacy is embedded into the academic programmes.
- For staff to design their teaching strategies inclusive of information literacy.
- For staff to meet their teaching expectations as well as to develop more expertise (Bruce, 1994). These points are further supported by Webber and Johnston in Walton and Pope (2006:47-58) for universities to create staff information literacy skills initiatives.

2.6.2. Public sector approach to workplace information literacy implementation

In order to give an overview of the public sector's efforts regarding workplace information literacy, two examples will be used as areas of focus and they are:

- Public servants in Kaohsiung City in Taiwan
- The study of the information literacy capabilities of Kuwait police officers.

2.6.2.1. Public servants in Kaohsiung City in Taiwan (an implementation case study)

A study was conducted by Chou *et al.* (2008:251-265) in Kuwait, discussing the information literacy of staff. What is not mentioned in the document, however, is the study period.

27

Kaohsiung City was selected on the basis of being the biggest city in Taiwan. It also has a commercial harbour. Taiwan was selected on the basis of being characterised by intense information competition and rapid technological development in the design and development of an infrastructure to support electronic government. According to the article, the aim of electronic government is to provide service to the public, to pursue a broadband based and wireless Kaohsiung City where the public will interact with the government departments using the internet.

In order to achieve the objective stated above, the information literacy of staff had to be studied. Data was collected from twenty respondents through interviews consisting of sixty to ninety minutes. The sampling strategy was purposeful so as to be representative. Voice recording was used as well as note taking. The respondents' information literacy was rated as very high, high, medium and weak; however, percentages used to arrive at these criteria were not stated. Respondents were also classified in terms of age, gender and educational major.

Findings rated the respondents from computer science and electronic engineering as those with very high levels of information literacy. Respondents in the field of land administration, urban planning, civil affairs and transportation rated as those with high levels of information literacy. The category of history and business fell within the medium rating. The weak rating included the law, general management, tourism and accounting.

Respondents with very high levels of information literacy were motivated and involved in e-government initiatives whereas the weak category levels focused on their work and were less motivated (Chou *et al.*, 2008:258-261).

2.6.2.2. The information literacy capabilities of Kuwait police officers (an implementation case study)

In order to substantiate efforts that have been taken by the public sector to acknowledge workplace information literacy efforts, the Kuwait police officers implementation case study is also used as they are part of the public service. Al-Daihani and Rehman (2007:614) regard the police profession as time-critical and knowledge intensive as they have to make quick decisions from informed sources. Al-Daihani and Rehman (2007:614) argue that the police need to be information literate so as to solve traditional as well as high-tech crimes. According to them, information literacy can also assist in preparing for difficult assignments.

28

Kuwait is a state situated on the Arabian Peninsula. The Kuwait police fall under the Ministry of Interior. The police department is divided into public security, law and order, public service, national documents, immigration services, driving licences, etc. The study undertook to determine the levels of information literacy skills of officers after attending information literacy training. Copies of a questionnaire were handed out to the two hundred and ten officers who were enrolled in the information literacy training programme and who attended the training. Participants were selected in terms of job designation, experience, educational level, age and gender. The participants were also selected in terms of rank, for example colonel, lieutenant, captain etc. The purpose was to ascertain if police have confidence in their information literacy skills.

The study found that the rating differed in terms of departments, educational qualification and job experience. A 5-point Likert scale was applied whereby the continuum could be rated from poor to excellent. Police with high qualifications proved to be the ones more active in the application of information literacy skills as compared to those with a lower educational level. It was acknowledged that the availability of computers and the internet had made the work of the police much more effective (Al-Daihani & Rehman, 2007:613-626).

A Lesson learnt from the results of this study is that according to the rating of 1 to 5, it was notable that more needs to be done on workplace information literacy. It showed that once-off training is not effective and that most employees who applied information literacy skills were those with higher educational qualifications. The ANOVA (Analysis of variance) system was used as data analysis tool (Al-Daihani & Rehman, 2007:318-319).

2.6.3. Private sector approach to workplace information literacy implementation

Within the private sector's attempts to address workplace information literacy, two organisations serve as examples for this discussion and they are:
- The Blake Dawson Waldron law firm.
- Unilever R & D.

2.6.3.1. The Blake Dawson Waldron law firm (an implementation case study)

It is mentioned in Swords and O'Sullivan (2004:336) that corporate libraries should not be gatekeepers to information but facilitators to information skills acquisition. The authors mention that the experience at Blake Dawson Waldron firm has proved that information literacy should not be taught in isolation like "how to" but should be taught in collaboration

with critical and lateral thinking skills, as well as problem solving and learning from one another in order to make information literacy meaningful. Swords and O'Sullivan (2004:336) argue that workplace information literacy should encompass the following strategies:

- How colleagues can learn from one another.
- Critical and lateral thinking skills.
- Challenges to assumptions of information.
- Strategic approaches to scenario based research.
- Encouragement of group discussion.
- Critical and comparative methods in job handling and information application skills.

The above aspects are important for the purpose of this study since they are deemed valuable elements of workplace information literacy skills requirements and for the development of a framework.

What has to be considered for training is what the organisation stands for. In the case of the law firm, lawyers need a billing target and for them attending training come with challenges. It is further mentioned that action learning has proved to be effective when used as a learning style at Blake Dawson Waldron. With every day research, junior lawyers proved to carry out more research (Swords & O'Sullivan, 2004:337). Training has proved to be a challenge as the time factor is critical. Training can be evaluated by using team debriefs, whereby teams evaluate their successes and failures including where to improve. Written evaluation from participants and the staff's own subjective observation can also be considered (Swords & O'Sullivan, 2004:337).

2.6.3.2. Unilever R & D (an implementation case study)

In a survey of the attempts of Unilever R & D to advance information literacy, Donnelly and Craddock (2002) discovered that although end-user information tools were available to the researchers via the desktop, the evidence showed that the tools were underutilised. Unilever is a company responsible for production of multinational goods such as Dove, Domestos, and Lipton to name but a few. The company has six research centres worldwide, with two centres in the UK, Colworth and Port Sunlight. Unilever has access to databases such as Information Science Toolbox, ISI (Institute for Scientific Information) Web of Science, CAS (Chemical Abstract Service) SciFinder and Micropatent. The organisation also has access to a number of other international databases as well as current awareness services and research reports that have been conducted and published by researchers based at the company.

Initially training offered by the Unilever Information Centre enquiry desk focussed on the use of the databases, but in isolation. It was a so-called 'Click and scroll down' instruction. Since a lack of awareness of the range of databases available from the user's desktop was noted in the study by Donnelly and Craddock (2002), promotion, marketing, and education and training on the resources had to be strategised. Promotion and marketing of the databases became more vigorous and the benefits attached to the databases were widely and highly promoted. Workshops were carried out on a monthly base whereby outside specialists were invited to talk to researchers on a wide variety of information topics such as mind mapping, searching techniques, patent searching techniques and information resources such as electronic journals.

Attendees felt that they could improve their skills level as they became aware of their shortfalls. Advice was sought on a range of subjects including how to increase the search relevance, how to spend less time searching, how to manage a sheer amount of information (Donnelly & Craddock, 2002).

What came to the attention of information specialists was that those who proclaimed to be on board with the skill competency "*did not know what they don't know*" (Donnelly & Craddock, 2002). This implied that researchers had comfort zones where they stuck only with what they knew without questioning the judgement of the information accessed (Donnelly & Craddock, 2002).

Before the initial start of the programme, advice was sought from organisations with such a programme already in place, to gain more insight from information literacy professionals. A pre- and post-programme questionnaire was designed in order to register changes as manifested by the outcomes of the programme.

As part of the programme, workshops had to be organised and participants had to determine their information needs as a point of departure. Learning theories were supposed to be part of the package and one staff member therefore focused on evaluating the information seeking and information behaviour of researchers attending the workshops. The workshop programme covered broad subject areas. It consisted of two modules:
•   Information discovery module.
•   Information management module.

Groups attending the workshops were divided into teams, each with a particular role to play as all the sessions were interactive and participation was part of the programme. The

workshops started with self-assessment, and then moved on to theory. The last part consisted of demonstrations and exercises. The programme was introduced as part of the staff induction programme covering various facets related to their workplace.

The effectiveness of the programme was evaluated by Patrick Green from Sheffield University as part of a Masters' thesis in Librarianship (Donnelly & Craddock, 2002). The findings concerning participants' feedback gained from the experiences were:

- Discussions were considered the most valuable part of the course.
- The course was relevant to their needs, although some claimed to have acquired the skills previously.
- Participants consult with information specialists on complex information requests.
- Duplication of efforts was avoidable as people worked in teams.
- Needs for more practical exercises in preparations for future workshops were identified.
- A significant change was noted in ways in which information tasks were handled as people were equipped with better information skills.

2.7. RESEARCH STUDIES UNDERTAKEN ON WORKPLACE INFORMATION LITERACY

In addition to the case studies discussed in the preceding section (focusing on attempts that have been made to implement workplace information literacy), this section purports to highlight the research that has been done in the investigation of workplace information literacy. In this section each research study will be referred to as a case and it will be given a case number. For the purpose of this research each case will also be given a brief title. In order to ensure a systematic discussion, the following will be addressed in table form:

- Scope of the research study (i.e. research case).
- Purpose.
- Sampling.
- Methods.
- Findings as well as issues that need to be addressed.

2.7.1 Research case one: The Big Blue Connect

The Joint Information Systems Committee (JISC) launched a Big Blue Connect project commissioned between June and December 2003. The Big Blue Connect aimed at investigating different manners in which support staff use information to carry out their task

in the work environment (Harris *et al.*, 2004:2). This study was conducted by the joint effort of Manchester Metropolitan University library and Leeds University library.

Table 2.1: The Big Blue Connect research case

Purpose	The employer has the responsibility of seeing to it that staff are equipped with the necessary skills to perform their tasks effectively and therefore has to provide support by fostering training in ICT inclusive of information skills for professional and personal growth (Harris *et al.*, 2004:1). The purpose of the study was therefore to investigate the information skills of staff in academic settings as part of a project known as Big Blue Connect.
Scope	The study focused on the information literacy capabilities of staff in higher education institutions consisting of further education colleges and universities as selected from participating institutions.
Sampling	The staff jobs were divided into the following area of work: academic, managerial, administrative and technical. The purpose of the categorisation was to get a view of different situations on information needs, access, handling and usage. Responses were 218 from 53 institutions.
Methods	A survey was conducted and it consisted of both qualitative and quantitative research approaches. There were questionnaires as well as interviews. The respondents had to fill in the first part of the questionnaire in the interviewers' presence. With e-mail surveys, the questionnaire was sent well in advance of the interviews. The interviews were only conducted subsequently. The interview could be conducted telephonically (Harris *et al.*, 2004:9).
Findings and recommendations	A general lack of awareness of what information skills is all about was noted. There was a lack of information literacy training particularly with regard to support services staff. The only time staff received training was when new databases were being introduced by the library. It was discovered that staff look for information in a haphazard manner which is tantamount towards personnel information overload. Such

33

	information overload is worsened by the internet (Harris *et al*., 2004:22).

2.7.2. Research case two: The i-skills workshop

Conroy (2006:3) reported on a project to study the information literacy skills of staff in higher education known as Netskills workshop. The project was funded by JISC from December 2005 to July 2006. The term i-skills denotes information skills. Workplace information literacy was part of these i-skills. The project was a continuation of the Big Blue Connect as reported earlier on by Harries *et al*. (2004) as discussed in research case one under section 2.7.1 of this chapter. The project was scheduled to take place in locations around the UK; the names of places are however not stated.

Table 2.2: The i-skills workshop research case

Purpose	The purpose of the workshop was to focus on specific administrative roles of organisations and institutions and on how they apply information in order to carry out daily tasks.
Scope	The scope of the study was the continuation of the previous Big Blue Connect project as conducted by Harris *et al*. (2004). It sought to determine what could be done in order for the project to succeed.
Sampling	Participants included administrative staff members from registry, academic services, library services, alumni, business and development, and other administration related jobs; 290 respondents from 75 higher education institutions responded.
Method	An online survey was conducted before the initial workshop. Follow-up interviews were conducted. A toolkit was provided to all workshop attendees. As part of the toolkit, an i-skills self-evaluation tool was also available so as to enhance individuals' skills development.
Findings and recommendations	The study discovered that the type of information mostly used was internally generated documents and that such documentation covered 86% and such information was used on a daily basis. From the information consulted 51% was statistical information, and 37% of the information came from professional literature (Conroy, 2006:6). This is a confirmation

34

	of earlier mentioned facts that employees stick to what they know as mentioned by Donnelly and Craddock, (2002), (see section 2.6.3.2. of Chapter 2). It was further discovered that people were not familiar with the terminology (information literacy, information fluency, e-information for example). From the findings it was recommended that follow-up training be conducted on specific topics, for example effective communication, knowledge management and information management (Conroy, 2006:21). Information overload was also considered a challenge (Conroy, 2006:22).

2.7.3. Research case three: The journalists' challenge

In a Master's dissertation Bradley (2003) investigated challenges of developing information literacy instruction for journalists. The study was conducted using news librarians from the United States and Australia.

Table 2.3: Journalist information literacy competency research case

Purpose	The study focused on the information literacy skills of journalists as assessed by news librarians.
Scope	The study dealt with the current training provided by news librarians to journalists in order to empower them to search for their own information as well as how to apply that information.
Sampling	The study was conducted using approximately 500 news librarians working with journalists from two countries, the USA and Australia, as the research subjects. The reason given for using two countries as a focus area is that Australia has only a few news libraries, and the USA more.
Method	The study used a non-experimental sampling method and was based on a questionnaire. Some respondents did, however, not understand all terminology used in the questionnaire. As a form of follow-up, in-depth email interviews were conducted. Analysis of the data collected was conducted by using SPSS (Statistical Package for the Social Sciences). Although the author explains that the results are not generalizable, there are things to be learned from the study.

	This study might have been more useful if the study had been conducted on the journalists themselves. It would have provided first-hand information from a user's perspective, and might have been more useful for the current study reported in this dissertation.
Findings and recommendations	When considering the findings, it should be remembered that it is based on the perceptions of librarians working in news libraries. The study discovered that according to the perception of the librarians, the journalists are not completely confident using technology. The challenges journalists faced include that they have to use the most appropriate methods of seeking, verifying and using the correct information in order for them to deliver correct information to the public. Journalists find themselves surrounded by too much information and they have to deal with this within the constraints of time.
	The librarians felt that the journalists have to prioritise the most important information and what is worth to be reported. They especially need to be careful of inaccurate reporting. A lot of reliance is placed on online sources and this calls for verification of the techniques that ensures that correct information is conveyed to the public. In news reporting the truth of the story is especially important. Journalists also require analytical skills to filter information. Journalists have to reference the sources of information consulted so that others can also refer to these sources and use them for verification. Journalists seem to rely a lot on the internet as a source of information. It also seems as if a lot of managers are reluctant to send journalists for training as it is difficult to measure the output.

2.7.4. Research case four: The private investigators' challenge

Schefcick (2004) investigates the information seeking and use of private investigators. However, the author does not mention information literacy skills, but since the process of information seeking involves information literacy, the study is considered here. Case

(2012:77) explains information seeking as behaviour directly observed when information is needed, including how such information is acquired, satisfaction of such a need and how that satisfaction can be judged. This view is supported by Allen (1996:56), Julien and Michels (2004:547-548) and Westbrook (2008:24). (The intention of mentioning these sources is to point to the need to consider many similar studies that have been reported on the information needs of specific groups of professionals and work contexts, because that needs to be considered in the planning of information literacy programmes). The primary job description of private investigators is to find information which in most cases is difficult for an average person to find (Schefcick, 2004:5).

Table 2.4: The private investigators' research case

Purpose	The purpose was to study the processes taken by private investigators to look for information, the role of the private investigators, the type of information they consult and the skills they need for this. Although not stated in the text, this is an important trait of information literacy skills. The importance of information seeking as an information literacy trait has been documented in Fourie (2008:133).
Scope	The scope of the study focused on the manner in which private investigators search for and verify information and how they apply the information, as well as the risks and legal implications of the information in this sector.
Sampling	A sample of detectives that had a state licence as private investigators was selected. The sample became smaller due to fear of the stigmatisation investigators go through. The selection of participants was based on Gill and Hart's (1997) categorisation of private investigators suggesting four categories: • Home-based private investigator, High street agency, Regional agency and Prestige companies. Contact was made from the North Carolina phone book and the North Carolina State directory of private investigators. The web was also used to identify participants. Four agencies in terms of the Gill and Hart category were identified for selection of research participants (Schefcick, 2004:21-22).

Method	The researcher had the opportunity of spending two days with each participant to get an idea of their information seeking and use processes. This included both observation and interviews. Information gathered mostly came from interviews as investigators felt uncomfortable with being observed when searching for information. Those that agreed to participate restricted the type of information they searched for while being observed (Schefcick, 2004:23).
Findings and recommendations	The challenges faced by Schefcick (2004:21) were that private investigators were reluctant to be part of this research due to the fact that the information they deal with has the potential for serious harm for the client as well as the person under investigation.

The following were identified with regard to the information seeking processes of private investigators:

- Time spent searching, subject and source familiarity, access and source usage and deception role in the process.

This study shows that information is a very important commodity for private investigators to carry out their tasks professionally and systematically. They deal with high risk information and according to Schefcick (2004:5) they can be considered as information professionals.

Although not noted by the author, it is important for workplace information literacy skills to note this type of study on the information seeking of specific groups of professionals and work contexts. For the current study, research on academics (i.e. Faculty) and other workers in the university context would be important. Examples of such studies include Madu and Dike (2012:180), Makri, Blandford, and Cox. (2008) and Webber and Johnston in Pope and Walton (2006:47). |

2.7.5. Research case five: The fire fighters' challenge

Lloyd (2005a) conducted research into the information literacy skills of fire fighters. It formed part of a doctoral study. This study was conducted between 2002 and 2004.

Table 2.5: Fire fighters' research case

Purpose	The research centred on information literacy skills applied by fire fighters based at the New South Wales fire brigade. The purpose was to determine information literacy applications in a workplace setting.
Scope	The scope focused on the day to day information literacy skill applications of fire fighters, the complexity of the tasks, and the community of practice as a way of supporting new recruits into the daily routine.
Sampling	Twenty members of the brigade from three platoons based at the New South Wales fire brigade were used as the study subjects.
Method	The data was collected using interviews and observations. It was then analysed according to the constructive grounded approach. The reason for the use of both interviews and observations was that the data collected, could be discussed freely with the participants so as to negotiate their experiences, what they went through as well as new information that could come out.

Findings and recommendations	Fire fighters gathered information through text including a variety of documentation and social means in sharing of information that could include personal interaction, physical, social as well as text sites (term used by Lloyd, 2005a) dealing with firefighting practice. • Textual information included documentation in the formal workplace such as policies, rules, training manuals, safety bulletins, standing orders and administrative documents. • Social information deals with shared practices of an organisation and information such as the core values and experiential information. It is mentioned that this type of information is difficult to present textually and this type of information develops novices into experts. • Social sites (which is implied as being on the social interaction level) dealing with social attitudes were also visited so as to broaden their horizons in as far as their attitude towards their work was concerned. Social site examples include the fire station and the training centre where the information is exchanged, interactions with others, and storytelling and narratives by experienced practitioners (Lloyd & Somerville, 2006:191). • Information literacy supported transition for new recruits to be well adjusted into the workplace (Lloyd, 2005a; Lloyd, 2005b:575; Lloyd & Somerville, 2006:189-182).

2.7.6. Research case six: Senior managers' challenge

In a conference presentation Kirk (2004:1-8) reports on research on information literacy skills of managers with a focus on the role information literacy can play in a corporate world.

Table 2.6: Senior managers research case

Purpose	The purpose of the study was to look at the information literacy skills as applied by managers in managing different

	tasks.
Scope	The scope of the study was to uncover different ways in which senior managers use information in their workplaces. The study also focused on the managerial processes, whether informational, organisational or of a personal nature, in the use of information.
Sampling	Fifteen managers from two public sectors were selected. All the managers selected were part of senior management teams responsible for implementing organisational strategic plans. The first organisation had 4,200 workers whilst the other had 450 employees. The managers were supposed to sketch their typical experience in workplace information searching, information use and presentations (Kirk, 2004:2). It is not indicated where (i.e. geographical location) the study was conducted.
Method	Semi-structured interviews were used taking between 55 to 105 minutes. In addition, secondary data collected included notes taken during the interviews. These were supported by documents given to the researcher by some managers. It is however not mentioned whether a tape recorder was used during the interviews (Kirk, 2004:2).
Findings and recommendations	From the senior managers' information literacy skills application, it was discovered that information for them is a social concept unlike in higher education where it is meant for individual growth. In the corporate world information is exchanged and interacted upon by staff. How participants use information, their experience with information and how they package it, impacts on the organisations' information flow (Kirk, 2004:5). The processes of sharing information and interaction contribute towards shaping judgement, making decisions and as such enhance the organisational information culture. It also adds to developing new knowledge and insights and influences the decisions of others. For example, it influences the development of documents, reporting, and gathering information, collaborative practice, compiling and formulating documents based on information decisions. The

41

	information decisions that managers have to make include developing new knowledge and shaping new insights (Kirk, 2004:5).

2.7.7. Research case seven: Nurses and evidence-based practice (EBP)

In the study conducted by Tanner, Pierce and Pravikoff (2004:936) the readiness of USA nurses to implement evidence-based practice (EBP) using information literacy skills, is explored. EBP purports to achieve sound patient care, as well as efficiency and effectiveness in the health care service. Information literacy is thus considered critical in the proliferation of EBP (Tanner *et al.*, 2004:936).

Table 2.7: Nurses and evidence based practice (EBP) research case

Purpose	The purpose was to investigate current information literacy skills of USA professional nurses, as well as the manner in which they access research information so as to meet the EBP requirement. The skills investigation involved: • Ability to utilise electronic information resources • Application of information seeking strategies • Purpose for using retrieved information The study purported to determine the readiness of nurses to carry out EBP (Tanner *et al.*, 2004:937).
Scope	Within the medical field, the USA came up with a programme known as EBP for nurses. EBP is aimed at ensuring patient safety as well as to improve nursing practice. According to Tanner *et al.* (2004:936) the specifications of evidence-based nursing practice (EBNP) requires candidate nurses to be computer literate as well as information literate at the entry level of their job.
Sampling	A random sampling technique was applied in order to identify participants. Participants were selected from southern USA states and two other states. Unfortunately the names of the states are not given in the article by Tanner *et al.* (2004:938). However, it is mentioned that the sample came from The North Central region, East North Central

42

	region and New England (Tanner *et al.*, 2004:938). Three thousand copies of a questionnaire were mailed. The response include the following:
	• Fifty three mails were returned due to non-existence of the addresses or the addressee being deceased (leaving 2 947 questionnaires that were mailed).
	• A total of 1 097 questionnaires were returned. Only 110 participants were retired. The remaining 987 were still active in nursing.
Method	A data-sampling technique known as Dillman's Tailored Design Method which implies the use of mail surveys was utilised in order to conduct the study. The surveys could then be scanned by using teleform technology so that the data could be aggregated statistically. The data analysis procedure included the use of frequencies, percentages and cross tabulations (Tanner *et al.*, 2004:937). The analysis of the collected data was measured using the information literacy standards based on the American Library Association (ALA).
Findings and recommendations	Less than 10% of the participating nurses affirmed that they do find themselves conducting research at least three times a year. Among them 48.5% indicated that they were not familiar with EBP. A total of 64% indicated that they needed information regularly. Only 35.5% indicated that they seldom need information (Tanner *et al.*, 2004:938). Barriers to the adoption of EBP include the organisation itself, lack of resources, lack of skills and lack of training. Without information literacy skills, new nursing knowledge will not be available to be integrated into the current nursing practice (Tanner *et al.*, 2004:936-939). Barnard, Nash and O'Brien (2005) shares the sentiments as echoed by Tanner *et al.* (2004:936-939) that there should be evidence in order for nurses to support their clinical decisions.

It is evident from preceding discussions and research cases that researchers investigated and studied various roles workplace information literacy could fulfil or actually did fulfil for

43

organisations. Interviews, observations and questionnaires were conducted in the zest to study the efforts that are done with regard to workplace information literacy. The essence of what can be learnt from the research cases reported here include: the importance of workplace information literacy, intervention processes and what outcomes could be yielded as a result of implementation.

2.8. WORKPLACE INFORMATION LITERACY IN SOUTH AFRICA

From a literature search it seems as if workplace information literacy has not received much attention in South Africa. Two documented initiatives in South Africa on this subject are reported by Keats (2002) while discussing the initiatives at the University of the Western Cape. Fourie (2008) focuses on the suggestions the health care profession should consider when designing workplace information literacy for health care professionals.

Firstly, a look is taken at the University of the Western Cape initiative as documented by Keats (2002). In 2002 the University of the Western Cape attempted to put workplace information literacy interventions in place (Keats, 2002). The University of the Western Cape came up with an Integrated Information Strategy initiative for staff and students whereby information literacy forms part of the intervention. Out of this project, one specific goal mentioned is that the university intends "*to strengthen its participation in the global academy of scholarship, and build a world class research publication profile while producing graduates who are internationally competitive in their fields*". It is the intention of this initiative that policies and guidelines to this effect are developed so as to initialise the proposed endeavour. According to Keats (2002), all stakeholders should be represented in the design and implementation of such a project.

According to Keats (2002) the following were important in the Integrated Information Strategy: users should have access to information, a suitable communication infrastructure as well as information literacy skills. An important psychological point mentioned is that, in order for such an endeavour to be accomplished, all stake holders need to adapt. It is noted that the workplace culture needs to change for this information strategy to be successful and effective. The project initiated by the university was a step taken to see that everybody is well equipped with the necessary skills inclusive of information literacy (Keats, 2002). From Keats (2002), it is, however, not clear whether they actually started with the project and what happened.

When discussing the information literacy skills of health care professionals as part of human information behaviour, Fourie (2008) suggests mechanisms of what information literacy

programmes for health care professionals should focus on. Fourie (2008), states that human information behaviour is an information literacy trait. Mention is also made that health professionals with particular reference to nurses find themselves under constant pressure as some patients are information literate and want to know more about the state of their illnesses as well as to be given accurate diagnostic information based on evidence. Health professionals therefore find themselves in situations where they must have accurate information when they make decisions, make recommendations, solve problems and address questions posed by patients. Based on research in human information behaviour, the following, according to Fourie (2008:135) should be considered when designing information literacy programmes for the health care professions:

- Awareness of health care information needs.
- Different health care information that is available.
- Health care professionals' information interest as well as lack of interest in information.
- Factors influencing information behaviour.
- Reactions and responses to information.

Recently, Fourie and Krauss (2011:303-321) reported on the outcomes of a programme for information literacy training of teachers in rural South Africa and how that can enhance their work performance. Lubbe (2004) reported on management information seeking for decision making. Except for the reported literature on workplace information literacy, recent searches conducted yielded no relevant results related to the study at hand within the South African context. This implies that more research and study in this area have to be conducted.

One of the mechanisms that can be used to ensure that information literacy becomes a national skill priority is media awareness of workplace information literacy (Perrault, 2006:1; Thompson & Cody, 2003). Although the South African media can play an active role in promoting information literacy it has not yet been widely publicised. Neither have policy makers expressed themselves on the importance of widespread information literacy applications in workplace. Workplace information literacy in South Africa has received little attention and little publicity. UNESCO initiatives regarding workplace information literacy, among others note the report of Thompson and Cody (2003) on the meeting of information literacy experts in the Czech Republic in Prague. From the South African perspective, the UNESCO report is mentioned by Krauss and Fourie (2011) reporting on the Information and Communication Technology (ICT) and information literacy (IL) training initiative at Kgoro Primary School (Zithobeni district) in Bronkhorstspruit. Information literacy has, however, received some attention in education, particularly in higher education (Toteng, Hoskins &

Bell, 2010; Lawal, Underwood, Lwehabura, & Stilwell, 2010; Jiyane & Onyacha, 2010). In the South African workplace context, there seems to be little exposure to training initiatives for workplace information literacy or in stressing the importance of information literacy in workplace.

2.9. CONCLUSION

This chapter explored the concept of workplace information literacy, accepting it as a skill and competence for employment. It also explored how workplace information literacy can be achieved in different contexts, namely the public, private and educational sectors. It also reports on a number of selected studies in various contexts of workplace information literacy.

Mention is made that in this networked global economy, it is essential that employees are information literate to be able to cope with mass and accelerated production of information. It is also noted from different authors' that information literacy should not be offered in isolation but should be embedded into one or more of the organisational skills requirements, for example computer literacy.

Challenges of a workforce that lacked information literacy were stated. Setbacks such as information overload were mentioned; health risks such as information fatigue syndrome were also stated. The other important aspects mentioned are what workplace information literacy purport to achieve, and the sustainability as a result thereof. The importance of workplace information literacy was emphasised.

Organisations that employed workplace information literacy as one of their corporate strategies were also mentioned, as well as the mechanisms they employed in the programme. These programmes include Unilever R & D., the National Australian University, and KPMG.

From the studies reported on workplace information literacy, it has emerged that with workplace information literacy, organisations are geared towards growth.

A lesson learnt from the literature proves that the workplace information literacy has been pursued in different workplace contexts and that justifies the development of a framework that can be used as a point of reference for different organisations.

CHAPTER 3

RESEARCH METHODOLOGY

3.1. INTRODUCTION

The purpose of this chapter is to describe and discuss the research methodology employed in this study, the sampling, data collection, and data analysis. Since a mixed method approach seems relevant, based on an analysis of similar and related studies (as discussed in Chapter 2) both qualitative and quantitative research approaches are therefore employed. According to Nkoane (2006:90) the application of both qualitative and quantitative research approaches bridges the limitations as set by one approach or research method. The value of mixed methods to ensure validity is also supported by Winter (2000) and Murray (2003). In line with a mix method approach, this chapter also explores the use of questionnaires and interviews (especially free attitude interviews) as described by Meulenberg-Buskens (1997:1-6). Where applicable, other methods and techniques are also mentioned to put the methods and techniques of choice into context.

3.2. RESEARCH APROACH: MIXED METHOD

According to Johnson and Onwuegbuzie (2004:14) mixed method research is regarded as a natural complement to qualitative and quantitative research approaches. Mixed method research advocates the insights provided by qualitative and quantitative approaches and also offers better solutions (Johnson & Onwuegbuzie, 2004:16; Spratt, Walker, & Robinson, 2004:6).

A mixed methods research approach in studies on workplace information literacy has been reported by Bradley (2003:6) when studying the information literacy skills of journalists. An internet-based questionnaire was used to collect data between June and August 2002 and follow up interviews were conducted in October 2002 (Bradley, 2003:6). Furthermore, the study conducted by Harris *et al.* (2004:9) for the Big Blue Connect project launched by the Joint Information Systems Committee (JISC), also applied mixed method research. Both qualitative and quantitative research methods were used to study manners in which support staff used information to carry out their daily tasks. Questionnaires were e-mailed well in advance and interviews were conducted telephonically (Harris *et al.*, 2004:9). Mixed method research is also reported in the work of Conroy (2006) on the Netskills project which is also related to the JISC projects. The study was a continuation of the Big Blue Connect study conducted by Harris *et al.* (2004). Online surveys were conducted before the actual workshop and interviews were later used as follow-up. Triangulation is recommended as one

method of collecting data. It is recommended in Mouton and Marais (1996:91) that triangulation is a multiple source approach to data collection. The term 'triangulation' was coined by a sociologist, Norman Denzin (Mouton & Marais, 1996:91; Sim & Sharp, 1998:23), to refer to the employment of multiple methods in data collection. Triangulation is important in the sense that it breaks down the barriers and limitations as set by a single method. Triangulation therefore acts as a compensation for other methods' limitations (Mouton & Marais, 1996:91-92; Turner & Turner, 2009:171). Corroboration can be used as a technique of obtaining feedback from participants (Scherer & LaPier, 2001). The next paragraphs reflect on what qualitative and quantitative methods cover.

Hoepfl (1997:48) defines qualitative methods as "*any kind of research that produces findings not arrived at by means of statistical procedures or other means of quantification*". According to Thomas (2003:1) qualitative methods describe the characteristics of people as well as events without using numbers. In a qualitative approach, the researchers study things in their natural settings, trying to make sense of the meanings people attach to phenomena, etc. (Thomas, 2003:1; Patton, 2002).

The following characteristics of qualitative research methods have been mentioned in the subject literature and seem important to this study (Denzin & Lincoln, 1994:2; Spratt *et al.*, 2004:10; Thomas, 2003:1-2):

- Studies can take place in natural settings.
- Attempts are made to make sense of the natural phenomena.
- They offer opportunities to interpret the sense people attach to meaning.
- They concern the use of, and collection of empirical material, personal experiences, introspection, life stories, historical documents, interactions, as well as visual text (Denzin & Lincoln, 1994:2; Flick, Von Kardorff & Steinke, 2004:9; Thomas, 2003:1-2).

With qualitative research, as with other research, researchers are expected to refrain from making premature assumptions or decisions. This is also stressed by Craig (2006:7), Hoepfl (1997:50) as well as Silverman (2004:11). According to Silverman (2004:11) the researcher must remain open so as to discover facts that concern people, tools used by people to interact with others, and the world at large. It is important that the views and opinions of people, and their experiences are gathered in their natural setting as this is also a characteristic of qualitative methods (Malterud, 2001:483). The views of people, their feelings, and perceptions about the research subject are crucial and have to be fully explored and documented (Campbell, 1999:539; Craig, 2006:5). Since these attributes

48

cannot be measured, qualitative methods need to be applied. Data collection in qualitative methods is not numerical but verbal, exploring feelings and perceptions (Scherer & LaPier, 2001:124). People are entitled to make suggestions as participants in the research. According to Hoepfl (1997:50) this may significantly influence the recommendations from participants. For the purpose of this study qualitative data is collected by means of interviews.

This study, however, also needs some quantitative data (in-line with the argument for mixed method research). Quantitative methods entail the collection of data in numerical format (Bryman, 2004:62). Data can be collected by means of questionnaires. For purposes of this study a questionnaire was used. It addressed the biographical information of respondents, information needs analysis, and training needs analysis. Space was also provided for respondents to raise other concerns regarding the research topic.

A brief overview of the strengths and weaknesses of qualitative and quantitative methods is reflected in Table 3.1.

Table 3.1: Qualitative versus quantitative methods

Qualitative methods – strengths	Quantitative methods – strengths
• Seeks illumination, understanding and extrapolation under similar circumstances (Golafshani, 2003:600; Hoepfl, 1997:48). • Concerned with quality (Olson, 1995). For example, it stimulates understanding (Golafshani, 2003:601-602). • Uses thick analysis which focuses on the strength of the interpretative work regarding the meaning of human behaviour (Collier, Seawright & Brandy, 2003:72). • Organised in nominal level (Collier *et al.*, 2003:71). Nominal level is defined as "*characteristics of an outcome that fits not one and only one category or*"	• Seeks causal determination with generalisable findings (Hoepfl, 1997:48). • Measuring (Olson, 1995). Golafshani (2003:598) explains quantitative measurement as an attempt to fragment phenomena into measurable categories which should have wider application under similar conditions. If the same measurement is conducted repeatedly, it should yield the same result (Golafshani, 2003:598). • Statistical tests are considered to be powerful analytical tools which help strengthen the certainty of findings (Collier *et al.*, 2003:72). • Organised in ordinal, interval and ratio level (Collier *et al.*, 2003:71). In other words, ordinal, interval, ratio measurements can be quantified.

49

Qualitative research method – Disadvantages and limitations	Quantitative research method – Disadvantages and limitations
• There is no "*defined truth test*" which means that absolute truth is not determined (Hoepfl, 1997:57). • Qualitative data can be messy and voluminous (Weitzman, 2003:145). • The credibility depends on the confidence the reader places on the researcher's ability to display sensitivity towards data and outcomes (Hoepfl, 1997: 47).	• Not able to give a full account of interaction effects that might be important (Hoepfl, 1997:49). • Due to lack of social phenomena interaction, the statistical measurement can prove to be inadequate and as such specifications of a statistical model may lack social impact (Kelle, 2006:296).

class, for example gender can either be male of female" (Salkind, 2004:275).

• Try to make sense of cases (Ragin, 2003:109).

• Uses formal testing (Collier *et al*., 2003: 74-75).

3.3. DATA COLLECTION

Data collection is very important in determining the success of solving a research problem. This statement is supported by Mouton and Marais (1996:75) by stating that human beings are capable of reasoning their existence as they are rational beings. Guidelines on data collection have been offered by, amongst others, Miles and Hubberman (1994:41). The guidelines apply to surveys, fieldwork, questionnaires, etc., as different techniques can be used.

The following are mentioned as important guidelines in data collection:

- Determining the research focus as it sets boundaries for what to include and exclude.
- Determining where and from whom data is collected.
- Noting the steps to be taken in data collection.
- Designing the instruments to be used (for example questionnaires, interview schedules).
- Noting data analysis procedures.
- Considering trustworthiness factors and ensuring validity of data collected (Hoepfl, 1997:51; Westbrook, 1994:241-245).

50

3.4. INTERVIEWS AS DATA COLLECTION TOOL

According to Denzin and Lincoln (1994:361) interviewing is regarded as "*one of the most powerful ways we use to try understand our fellow human beings*". Botha (2001:13) defines interviews as "*repeated face to face encounters between the researcher and the informants directed towards understanding informant's perspective on their lives, experiences, or situations as expressed in their words*" (Botha, 2001:13).

Mouton and Marais (1996:92) hinted at an important point by mentioning respondents' reluctance to supply information during interviews. The authors felt strongly that it is important to guarantee anonymity of the participants as far as possible. Mouton and Marais (1996:92) alluded to the fact that the trust of respondents should be gained first. This can only be achieved in the case where the researcher has established rapport with the participants. Rapport is valuable in the sense that it allays the distrust the respondents have about the interview process (Mouton & Marais, 1996:93). As mentioned previously under section 1.7.1 in Chapter 1, it is through interviews that self-reflection, confession, examination and self-knowledge of participants is encouraged (Alvarez, 2002:88). Interviews can be used as the sole data collection tool or alternately they can be used in conjunction with other data collection tools like observation or questionnaires. Interviews can be structured, semi-structured or open-ended to allow individual freedom (Hoepfl, 1997:52).

There are several types of interviews. The following types of interviews have been documented in Flick (1998:76):

- Focused interviews.
- Semi-standardised interviews.
- Problem centred interviews.
- Expert interviews.
- Ethnographic interviews.

Apart from afore mentioned interviews can also be conducted in the following manner:

- Individual interviews (Kvale, 1996:101).
- Paired interviews (Barker, 2006).
- Group interviews (i.e. focus group interviews) (Kvale, 1996:101).

A brief discussion on some of the interview types follow, indicating the potential value each carry for research in order to contextualise the choices made with regard to data collection.

51

3.4.1. Individual interviews

Kvale (1996:101) describes individual interviews as interviews that vary according to content for instance they might seek factual information, opinions, attitudes and even life histories. Individual interviews can also be conducted telephonically (Gubrium & Holstein, 2002:461). Interviews with individuals can be conducted to obtain individual views on a research topic.

3.4.2. Paired interviews

A paired interview is defined as a method of collecting information from several people at the same time, as being representative of the identified audience (Barker, 2006). Where necessary it can be used to complement individual interviews.

3.4.3. Group interviews

Group interviews are sometimes also referred to as focus group interviews (Kvale, 1996:101; Morgan, 1997). According to Lewis (2000) group interviews are limited to particular situations where the selected group is manageable so as to permit genuine discussion. Group interviews are also a helpful technique to expand research. Gillham (2005:60) distinguishes between group interviews and focus group interviews. This author mentions that in group interviews anyone can come but in focus group interviews, limitations are set to a particular focus or interest. Focus groups are efficient in the sense that six to ten people can be interviewed at the same time (Kvale, 2007:72). Further mention is made that groups and focus groups generate a depth of rich ideas as interaction takes place. An identified setback with group interviews and focus group interviews is that one individual can dominate the whole interview (Scherer & LaPier, 2001:125).

Group interviews can be conducted to obtain the views of a collective on the research subject. Hancock, Windridge & Ockeford (2007:22) recommend that groups should consist of between five and ten people in order to maintain orderliness. For purposes of this study, individual members of committees have been used as participants.

3.4.3.1. Interview structures and guidelines

Interviews can be categorised into the following: informal conversation interviews, semi-structured interviews as well as standardized or open ended interviews. Gorman and Clayton (2005:127) and Pickard (2007:175) also report on structured and unstructured interviews. Structured interviews are sometimes referred to as survey interviews as answers are already predetermined. Pickard (2007:175) refers to it as the "researcher's self-administered questionnaire". These types of interviews are normally conducted in a tightly controlled manner. Unstructured interviews are more flexible; respondents are allowed to give their opinions freely since they are open-ended and intensive (Gorman & Clayton, 2005:127; Leedy & Ormrod, 2005:146; Pickard, 2007:175). Semi-structured interviews are based on a central question (Leedy & Ormrod, 2005:146). In order for interviews to become an effective data collection tool, an interview guide and schedule should be available. Such a guide is prepared so as to ensure that different participants are asked the same questions with no predetermined answers envisaged. This empowers the interviewer to probe inquiry areas (Pickard, 2007:176). The role of the interview guide is to maintain focus on areas of particular importance (Hoepfl, 1997:52). For the purpose of this research a semi-structured interview with a schedule was used to maintain consistency.

3.4.3.2. The interview process

According to Campbell (1999:540-542), Flick (1998:76-80) and Hoepfl (1997:52) the following are important for successful interviews:

- Developing an interview guide.
- Planning the scenario or the setting. Gillham (2005:4) argues that this could prove to be a challenge due to legal, personal and other circumstances like distance and stigmatization.
- Starting and ending of the interview (i.e. starting and ending with questions that are easy to answer or that can help the interviewee to relax) (Campbell, 1999:540-545; Flick, 1998:76-80).
- Briefing of interviewees about the reason for the interview.
- Maintaining the flow of interviews.
- Ensuring that the interviewees are free and relaxed (Kvale, 1996).

The techniques used in this study are discussed in section 3.4.4 of this chapter.

3.4.4. Interview procedure for this study

53

As mentioned in Chapter 1 under 1.7.1 individual interviews, with individuals and individuals representing a committee are used to collect data. For the purpose of this study free attitude interviews by Meulenberg-Buskens (1997:1-6) (also mentioned in section 1.7.1 in Chapter 1 of this study) was used. In a free attitude interview the interviewer's attitude is very important as it has to be inviting. The interviewer's unconditional positivity throughout the interview is also important (Meulenberg-Buskens, 1997:1-6).

The guidelines as discussed in section 3.4.4 of this chapter are used for interviews and the following had to take place:

- A meeting is scheduled with participants at their most convenient time and a suitable place of their choice.
- Interviews are scheduled to take place for one hour.

Clarifying questions can be asked to probe deep into those participants who do not offer details (Westbrook, 1994:224). Gillham (2005:32-33) refers to them as probing questions. Kvale (2007:58) further refers to them as "Why?" and "How?"

The verbal thoughts as articulated by respondents with their consent are tape recorded and transcribed to keep a record of the interviews. This is discursively (analysing the conversations for hints) analysed so as to identify patterns of similarities (Case, 2012:253-254). It is through interviews that comparison and contrast in opinions are extracted.

3.4.5. Interview schedule themes

Based on the discussion in Chapter 2, interview schedule themes have been identified and focused on the following aspects: as also reflected in Annexure D of this dissertation.

- Perceptions of the importance of workplace information literacy.
- Role of information in developing expert skills in fields of specialty.
- Importance of training addressing workplace information literacy.
- Whether workplace information literacy should be a prerequisite for employment at CUT.
- Skills to be addressed in a workplace information literacy training programme.
- Recommendations on the nature of workplace information literacy training.
- Whether workplace information literacy skills should become part of the CUT corporate plan, and if so, which recommendations can be offered.
- Responsibility for workplace information literacy training.

- Challenges foreseen with regard to workplace information literacy training at CUT.

- Suggestions for awareness initiatives to ensure the implementation of workplace information literacy training.

- Suggestions for monitoring the application of workplace information literacy.

- Opinion on the role the library should play in promoting workplace information literacy.

- Role specific committees should play in ensuring that workplace information literacy becomes an institutional practice (only put to committee members with regard to their specific committees).

3.5. QUESTIONNAIRES AS DATA COLLECTION TOOLS

It is important to give a brief description of what questionnaires are. Brace (2008:4) describes a questionnaire as a "*medium of instruction between two people*" even if they are remotely situated and unable to communicate directly. There are three types of questionnaires, namely, structured, semi-structured and unstructured questionnaires (Cohen, Manion & Morrison, 2007:321; Shonrock, 1996:4). A structured questionnaire is designed in such a way that answers are pre-coded and respondents do not have the latitude to stray from them. A semi-structured questionnaire employs a mixture of questions that include predefined answers and those that are more probing and dig deeper into reasons for certain answers. With an unstructured questionnaire the researcher allows respondents to write answers down. Considerable latitude is then given to the respondents (Cohen *et al.*, 2007:321).

It is appropriate to state briefly what questionnaires should consist of and how they should be structured. It is mentioned in Jenkins and Dillman (1995:10) that questionnaires should be administered either in the supervised or unsupervised settings by the researcher or filled in by respondents on their own without being assisted by the researcher (Bourque, 2004; Fink, 2009:4). They should consist of navigational guidelines like shape, colour, and navigational paths for the respondents to follow during answering. Questionnaires should also allow for appropriate numbering and answer boxes; these should be grouped according to laws of similarities, for example close ended answers can be grouped together (Jenkins & Dillman, 1995:10-12).

Brace (2008:8) further mentions that a questionnaire and the questions should have the same meaning for all respondents. The issues that the questionnaires have to capture must

be clearly stated. Questionnaires can be used to solicit information about attitudes, satisfaction with service, behavioural patterns, etc.

The following have been mentioned as guidelines for questionnaires:

- Avoiding long boring questions.
- Avoiding complex jargon.
- Avoiding contradiction of questions (Brace, 2008:8; Pickard, 2007:185).
- Abstaining from asking offensive questions.
- Keeping it short so as to afford the respondent the opportunity to finish in a reasonable time.
- Paying attention to appearance, ensuring a good, inviting and professional look (Leedy & Ormrod, 2005:190-191; Pickard, 2007:185).

3.5.1. Types of questions

The questions can be structured in the following manner:

- Spontaneous or prompted, meaning the respondents are given the opportunity to answer in their own words or are provided with some answering options.
- Open, open-ended or unstructured questions are those questions with a response pattern where respondents provide their own opinions (Frey, 2004). Pickard (2007:194-195) refers to open-ended questions as questions without any parameters that restrict the respondent and are qualitative in nature.
- Pre-coded (also known as closed or close-ended questions) (Brace, 2008:45; Fink, 2003:4; Fink, 2009:15; Pickard, 2007:194). Kvale (2007:45) mentions that questionnaires with pre-coded answers are easy to analyse and report.

Questionnaires can employ the Likert scale for grading the degree of comparison regarding questions. The use of a scale emphasises that each individual item counts. Scales range from low to high (Fink, 2009:28-29). For the purpose of this study, most of the questions consist of a 4-point Likert scale. The reason for choosing to use a 4-point Likert scale is motivated by Garland's (1991:66) argument that a socially unacceptable answer of the mid-point such as 'neither, nor, uncertain' can be eliminated by a scale of 4 in contrast to scales of 3 or 5. For the purpose of this study questionnaires were physically distributed by the researcher to the secretaries of faculties and to individual staff members. Respondents were asked to contact the researcher for any clarity needed. The type of data collected and the

56

main categories of the questions are covered in Annexure C. Interview themes have been addressed in section 3.4.5 of this chapter.

3.5.2. Ethical considerations

Ethical considerations are primarily to protect research participants and respondents, to ensure their welfare and well-being and to ensure that they give informed consent for their participation in a study. They have to be fully informed about what the research is all about and that their privacy and answers to sensitive issues will be protected at all costs (Henning, Van Rensburg & Smit, 2004:73). Leedy and Ormrod (2005:147) confirm that their permission should be obtained and consent forms filled in.

- For ethical considerations each individual was given a consent form whereby it was indicated to them that they are not bound to participate and whatever they said could not be used against them and that their anonymity was guaranteed. The consent form is included in Annexure E.

- For the data to be collected, approval was granted by the Faculty of Engineering, the Built Environment and Information Technology (EBIT) Research Ethics Committee from the University of Pretoria.

- Since the Central University of Technology, Free State (CUT) was used as a case study, permission to conduct research had to be sought from the CUT Research Office.

3.6. DATA RECORDING

Data recording is the process used to record data so as to ensure that the process of analysing data does not have biased inferences and to ensure valid inferences (King, Keohane & Verba, 1994:23). For interviews, the following data recording tools can be used: tape recorder, note taking and video recording. According to Hoepfl (1997:52), the choice depends largely upon the researcher. The data recording tools can be used individually or in combination. Caution is raised regarding the use of tape recording in cases where the device can turn out to be defective or technical failure appearing after the recording (Hoepfl, 1997:52). A tape recorder, however, has the advantage of capturing data faithfully as compared to notes that can be scribbled hurriedly. With a tape recording an interviewer can also focus more on the interview than scribbling notes down (Hoepfl, 1997:52; Kvale, 1996).

Specifications of the type of tape recorder to be used are well documented in Hancock (1998:14). This author mentions that the tape recorder to be used should be small, unobtrusive and should also have a built in microphone. The tape recorder should have an automatic facility so as not to disturb the researcher to fiddle with it and therefore compromise the quality of the interview. A tape recorder with counter facilities is recommended. Kvale (2007:93) explains this by saying that the recordings can be directly transferred to a computer where they can be replayed (Hancock, 1998:14; Marshall & Rossman, 1995:109). Video recording can also be used by researchers during interviews because the non-verbal expressions of the participants could be recorded. Uhrenfeldt, Peterson and Hall (2007:1) argue that video recordings are useful especially in the case of novice researchers who cannot capture the exact words of the participants. Advantages and disadvantages of data recording tools are depicted in Table 3.2:

Table 3.2: Data recording tools: advantages and disadvantages

Tool	Advantages	Disadvantages
Note taking	• It allows for capturing facial expressions, actions and gestures which can be recorded alongside the participants' spoken words. Participants might not want their views tape recorded (Daymon & Holloway, 2002:180).	• The researcher will miss out on observation as focus will be on writing down points. The researcher is prone to focusing on particular points of interest to perhaps negligence of the most important ones (Hancock *et al.*, 2007:19) • It can inhibit the setting in a way and affect participation (Marshall & Rossman, 1995:109)
Tape recorder	• Captures data faithfully (Hoepfl, 1997:53) • Enables the researcher to focus on the interview (Hoepfl, 1997:53).	• Must carry extra batteries (Marshall & Rossman, 1995:109) • Intrusive (Hoepfl, 1997:53) • Can experience technical failure (Hoepfl, 1997:53).

Video recorder	• The interviewer is free from taking notes and as such the flow of the interview is not compromised (Hancock *et al.*, 2007:19) • It is mentioned in Uhrenfeldt *et al.* (2007:4) that this tool permits the researcher to assume an outside role.	• The participants might be more conscious of the video and as such their natural behaviour might be affected. They can even avoid being filmed. A camera can be fixed somewhere unobtrusive (Hancock *et al.*, 2007:19).

For this study a tape recorder was used to capture the discussions with the sole intention of making sure that all details were captured. Apart from the tape recorder, a script was used to jot down key points as they arose during the interviews. Hancock (1998:14) cautions that note taking could be somewhat biased as the researcher take notes of comments that make more sense. These guidelines and concerns were noted for the purpose of this study.

The data recording process is normally followed by the data transcription process. According to Hancock (1998:14), transcribing is the written version of interviews. Transcription involves the process of reducing the original data by the selection of significant issues in terms of what counts most (Bailey, 2008:128). The data transcription process involves what is said and how it is said. Bailey (2008:128-129), further elaborates that a decision has to be taken as to which part of the interaction should be transcribed (Bailey, 2008:128-129).

In order for the data to be transcribed into the research work, tape recordings can be replayed so as to capture important key points that were central during an interview. This technique is referred to as tape analysis (Hancock, 1998:14). Sections of the interview that make more sense should be fully scrutinised by the researcher. In order to avoid bias Hancock (1998:14), recommends that a full script of the interview should be written as it serve as a guide to crucially mentioned points and guides the researcher for further analysis (Hancock, 1998:14). Transcribing of the whole script makes the tape analysis effective in the sense that crucial points which form the core of the research can be revisited. For the purpose of this study, the tape recorder was replayed and a transcript of the interviews was developed. Identification of emerging and similar patterns was conducted and they were grouped together for analysis.

3.7. DATA ANALYSIS

According to Scherer and LaPier (2001), the data that has been collected must be organised and transcribed and analysed to represent the original source. Coding is covered in more detail in section 3.7.1 of this study. The strategies used during the data coding process highlight concepts that frequented the interactions. The data is coded in such a way that related themes are grouped together.

Data analysis can be done by hand or by means of specialised computer software. Software that has been used in studies on workplace information literacy and information literacy in general include NUD-IST as applied by Cheuk (1998) when the information literacy skills of eight auditors and eight engineers were investigated. ATLAS.ti was successfully employed by Scales and Lindsay (2005:513) when analysing the findings of students' attitude towards information literacy. Not having access to such software, qualitative data was hand-coded for this study.

Irrespective of data management, the goal of the research is to come up with constructive meaning and answers to the research question. According to Hancock (1998:114-115) and Uhrenfeldt *et al.* (2007:4), the transcribed words as well as the tone and inflection are a good indication for transcription including feelings of participants and meaning attached to words. Hancock (1998:17) mentions two types of content analysis, namely:

- Basic level.
- Higher level of qualitative analysis.

The basic level of analysis concerns what a respondent said without attaching any meaning to the words and without assumptions. It is also referred to as manifest level analysis. The higher level analysis is interpretative in nature. It concerns itself with what was or might have been meant by a respondent, what was inferred, as well as what was implied. This is also referred to as the latent level analysis (Hancock, 1998:17). SPSS software was used to analyse quantitative data. Most of the questions involved the use of a rating scale and to be precise, Likert scales were used.

3.7.1. Data codification process

For the codification of data, guidelines offered by Flick (1998:178-183), Flick, Von Kardorff and Steinke (2004: 271-273), and Kvale (1996) are noted. According to them the codification and classification of data is systematised into categories. A description of each category

60

consists of what the category is about. Categories are also referred to as themes. Each point of data (also referred to as an item) is placed in a relevant category. The number of categories needed is determined by the data. The data also determine which categories need to be linked so as to reduce them at a later stage. Categories are further classified into major and minor categories. Major categories consist of main themes that support the research question. Categories are compared and contrasted. If an item fits in two or more categories it is indicated as such. After completing the codification procedure, it is possible to determine whether previously excluded data can be included or completely excluded. The importance of systematisation during codification is that it would be possible for the researcher to summarise findings in a truthful and accurate manner.

Hancock, Windridge and Ockleford (2007:12) warn that researchers should guard against choosing quotations by extreme vocal participants while neglecting submissions given by other participants. This can result in focusing too much on what extreme vocal participants said. The use of quotations should be representative and supportive towards the themes (Hancock *et al.*, 2007:23). Researchers should strive for objectivity within research.

3.8. SAMPLING TECHNIQUES

According to Locke, Silverman and Spirduso (1998) sampling is when "*a small number of sets (whether people, objects, events, or situations), is carefully selected*…." with the sole intention of having broader application for the entire population being investigated. The purpose of a sample should be to have larger applicability of research results. Several methods of sampling for example probability sampling, purposeful sampling, maximum variation sampling, and a random representative sample can be used (Denzin & Lincoln, 1994:229; Keats, 2000:74).

Purposeful sampling has been mentioned as a method that "*seeks information cases which can be studied*" (Hoepfl, 1997:51). It is the type of sample where the researcher purposefully selects individuals, groups and settings that serve to maximize the understanding of the research theme (Onwuegbuzie & Leech, 2007:111). Purposeful sampling can use the following techniques: snowball sampling, typical case sampling, maximum variation sampling, and convenience sampling (Onwuegbuzie & Leech, 2007:111-112; Steinberg, 2008:140-141). Snowball sampling deals with referrals, as when a respondent refers the researcher to other recruits; typical case sampling is when the researcher looks at typical characteristics in the respondents; and maximum variation sampling deals with diversity of the sample (Onwuegbuzie & Leech, 2007:112). Convenience sampling is when the

61

interviewer selects participants who are likely to participate in the research (Hancock *et al.*, 2007: 22; Hoepfl, 1997:47-61; Onwuegbuzie & Leech, 2007:114). For purposes of this study purposeful, convenience sampling was used. Participants representing committees and senior management were invited from committees and sectors of the university that were considered potentially influential to the introduction of a workplace information literacy programme. A similar rationale was followed for the selection of participants to complete the questionnaire. For the latter participants from junior as well as senior levels, academic and supportive departments including members of committees were considered. A more structured approach to sampling was problematic at the time of the study (between 2010 and 2011) since CUT was in the process of restructuring. For interviews, individuals were contacted, invited and interview appointments scheduled.

3.8.1. Sample population

The sample was drawn from the CUT (as an example of a higher education institution) on both the existing campuses in Bloemfontein and Welkom. Table 1.2 in Chapter 1 of this study provides the total number of staff components for both the Bloemfontein and Welkom campuses. For this study a total of 200 copies of a questionnaire consisting of both open- and closed- ended questions for self-administering by respondents were distributed. Respondents were randomly selected from four faculties and support staff as indicated in Table 1.3, Chapter 1. Cheuk (1998) selected eight engineers and eight auditors as research participants.

For interview purposes, position level was very important. Position was targeted because decision makers who make laws, rules and regulations could play a crucial role to enable workplace information literacy to be fully embedded and proliferated into the workplace system. A total of 20 participants were selected and the following criteria were used: middle level, senior and top management levels. (Four participated in individual interviews and interviews with committees; there are thus 24 entries in Table 1.3.) In the university settings, this includes Deans, lecturers for research support and work preparations, Registrar's office, directors of support services in different departments, and committee members. On the basis of levels, interviews sought to determine how people equip themselves with new information skills, and their feelings concerning the support from the employer to ensure that skills are transferred to empower employees to become effective and efficient workers.

3.8.2. Respondents' demographics

Demography is referred to as a scientific study of the composition and size as well as changes in the human population. Demography explains the population in quantitative characteristics and mathematically (Mostert, Hofmeyer & Oosthuizen, 1998:1). The respondents' demographics are important in the sense that they will give a picture of the characteristics of the population covered.

At the planning stage it was decided that interviews were to be held with one member of each committee and that more members of committees could be added if necessary. The role of each committee and how the data collected contribute to the study are depicted in table 3.3.

Table 3.3: Individual members of committees' assertions

Individual committee members from:	Role
Library committee (Typically library committees are heavily associated with information literacy. Such a committee is therefore in a position to comment and advice on awareness strategies for workplace information literacy).	Such a committee would be expected to look into application awareness strategies of workplace information literacy as a concept and how this concept can gain institution wide recognition. The purpose of the interview would therefore be to get the committee members' views of what their understanding of workplace information literacy could be and which strategies can be applied to ensure that workplace information literacy forms part of institutional practice.
Institutional forum (This committee is influential in the top structures of the institution and can therefore promote workplace information literacy).	The purpose of an interview with members from this committee would therefore be to determine what role workplace information literacy can play in the broader transformation of the institution within a joint forum perspective.
Research committee (All the research related issues have to be approved by this committee and as such the committee can have an	This committee determines the research output of the institution and could therefore address the role workplace information literacy could play in ensuring that the research output of staff within the organisation grows. The purpose of the interview would therefore be to find out if

influence in the implementation of workplace information literacy).	the selected committee member can suggest the role the research committee can play in ensuring that workplace information literacy is part of workplace processes.
Institutional equity committee (Matters that deal with equity related issues are the responsibilities of this committee. The influence this committee could have in the proliferation of workplace information literacy is noted).	This committee is responsible for addressing equity-related challenges of the university and therefore could ensure that on an equity basis, all staff have the opportunity of being empowered with workplace information literacy skills.

3.8.3. Respondents' current information training needs

More on the data collected, how it should relate to the needs as well as how respondents and participants manage to deal with information challenges, is presented in Chapter 4. An important fact to be considered is the information skills training needs as articulated by respondents and participants, as these impact significantly on the work. One other factor to be illuminated by participants is an assertion of how they manage to keep themselves up to date informationally with new developments currently taking place within their area of specialisation so as to advance themselves, to bring about change and development in their working lives.

3.9. CONCLUSION

The purpose of this chapter was to illuminate the research methodology suitable and applicable to this study. The use of mixed methods research, which is the combination of both qualitative and quantitative methods, for this research project and reasons supporting this decision were also addressed in this chapter. The advantages and disadvantages of both methods have been mentioned.

Various interview techniques have been mentioned including the one used in this study. It has also been mentioned that interviews and questionnaires were used as data collection tools, notes were also taken and a tape recorder was used to record the information from interviews. It was mentioned that in order for the qualitative data to be analysed a transcript of each interview was produced. The SPSS software was used to analyse the quantitative

data from the questionnaire. The feedback of respondents was intended to contribute to the research findings of the subject under study.

Chapter 4 deals with the analysis of both the quantitative and qualitative data and how results and findings have been arrived at.

CHAPTER 4

DATA ANALYSIS AND INTERPRETATION

4.1. INTRODUCTION

Chapter 3 dealt with research methods, research techniques and data collection tools used to collect and capture the data. Chapter 4 presents the data analysis and interpretation of the findings on workplace information literacy at the Central University of Technology, Free State (CUT) with the intention of designing a framework that can serve as a guide for future reference. Such a framework is suggested in Chapter 5.

4.1.1. Nature of data collected

Since data has been collected using a mixed method approach, the analyses address statistics and narrative formats. As explained in Chapter 3 semi-structured individual interviews and questionnaires were used as data collection tools.

The questionnaire was self-administered by the respondents between July and September 2011. It presented them with the following four areas on which they had to answer questions on:

- Demographic data.
- Information needs.
- Training needs analysis.
- Workplace information literacy corporate strategic plan.

The nature and structure of the questionnaire is explained in Chapter 3, under Section 3.5 and also attached as Annexure C of this study.

The interviews were conducted with staff members from various levels of management (i.e. top management, senior managers and managers) in the university. The interviews were conducted between July and September 2011. The intention was to collect data on decision makers' perspectives on workplace information literacy and how it could be adopted for implementation by the university. The nature and structure of the interviews, as well as the interview schedule were explained in section 3.4, Chapter 3, also included as Annexure D of this study.

4.2. QUANTITATIVE DATA ANALYSIS AND INTERPRETATION OF THE RESULTS COLLECTED FROM THE QUESTIONNAIRES

Although the number of respondents approached and the number of completed and useful questionnaires are mentioned in Chapter 1 (section 1.7.2) as well as Chapter 3 (under 3.5.1.), it is depicted here again for convenience of the reader. Two hundred copies of the questionnaire were distributed to academic and support staff. Only 136 were returned. The intention was to get feedback from academic as well as support services staff. Fifteen of the questionnaires returned were not completed; therefore only 121 completed questionnaires were analysed. The analysis is thus based on a response rate of 60.5%. Questionnaires from 58 academic staff members and 52 support staff were analysed. With regard to 11 questionnaires, it was not possible to determine whether the respondents were working as academics or support staff members. The response rate is reflected in Table 4.1. The SPSS software was used as a data analysis tool.

Table 4.1: Questionnaire completion figures

Number of questionnaires distributed	Number of questionnaires returned	Number of questionnaires not completed	Number of questionnaires analysed
200	136	15	121 (60.5%)

Due to internal restructuring at the institution at the time of data collection, the researcher opted for convenience sampling and approached departments (academic and support) that were available at that time to take part in the study, and that were considered purposeful had commented on the introduction of workplace literacy programme. These include four faculties and support services staff from departments as depicted in Table 4.5. Although not all staff members who were approached participated, all faculties and departments approached participated.

4.2.1. Demographic information

Table 4.2 reflects the results of the demographic data (also noted in section 3.8.2 in Chapter 3). The intention was to portray the demographic profile of the research respondents. The demographic information focused on the respondents' highest academic qualifications, years of experience in the current job, as well as job level. The results are presented in the sub-sections to follow.

4.2.1.1. Academic qualifications

All the participants answered the question about their highest academic qualification. The results are depicted in Table 4.2.

Table 4.2: Academic qualifications

N=121	Frequency	%
PHD	37	30.6
Masters	24	19.8
Honours	7	5.8
Bachelors' degree	27	22.3
Diploma	17	14.1
Grade 12 certificate	9	7.4
Total	121	100

The majority of respondents 37/121 (30.6%), have a Doctoral degree followed by Bachelor's degrees (27/121; 22.3%), which is followed by Master's degrees (24/121; 19.8%). From the respondents, 17/121 (14.1%) indicated that they are in possession of a diploma. Only 9/121 (7.43%) respondents indicated that they had only a Grade 12 certificate. In total participants with a degree are 95/121 (78.5 %) versus 26/121 (21.5 %) who did not have a degree.

4.2.1.2. Current position experience

Respondents were questioned about their years of experience in their current position. Only 116 out of 121 (95.9%) respondents answered this question. The results are depicted in Table 4.3.

Table 4.3: Years of experience in the current position

	Frequency N=116	%
1-2 years	38	32.8
3-4 years	34	29.3
5-6 years	24	20.7
More than 6 years	20	17.2
Total	116	100

The responses indicated that the majority of participants 38/116 (32.8%) had 1-2 years of experience in their current position, and 34/116 (29.3%) had between 3-4 years of experience. The respondents with 5-6 years' experience were 24/116 (20.7%) and more than 6 years' experience were 20/116 (17.2%) and for respondents with 5 and more years give a total of 44/116 (37.9%). Respondents with 1-4 years of experience were 72/116 (62.1%). The majority of respondents thus were only in their current position for a shorter period.

4.2.1.3. Level of job designation

Out of 121 respondents, 119 responded to the question on the level, section and department of their job designation. Respondents were required to indicate if they are working on a junior, middle or senior level in the institution. Table 4.4 reflects the number of respondents per level of job designation.

Table 4.4: Level of job designation

Level	Frequency N=119	%
Senior management	23	19.3
Middle management	19	16
Junior level	77	64.7
Total	119	100

The majority, which is 77/119 (64.7%), operates at junior level. This is followed by senior management, at 23/119 (19.4%), and lastly middle managers accounting for 19/119 (16%). Senior managers included programme heads, directors of programmes, managers and directors from different departments. Senior members of staff who participated in the interviews did not complete the questionnaire. More detail on the section and department responses are reflected in Table 4.5.

Table 4.5: Respondents according to department and section

Department	Section	Figures
Faculties and schools		
Faculty of Management Sciences	Government Management	3
	Tourism	2
	Office Technology	4
	School of Entrepreneurship and Business Development (SEBD)	5

69

Faculty of Engineering and Information Technology	Information Technology	11
	Mechanical Engineering	4
	Civil Engineering	5
Faculty of Humanities	Teacher Education	11
	Office of the Dean Support – Faculty administration	1
Faculty of Health and Environmental Sciences	Environmental Health	1
	Fire Technology	1
	Biomedical Technology	2
	Radiography	2
	Clinical Technology	1
	Dental Assisting	3
	Agriculture	2
Administrative support		
Academic Development Support	Curriculum Development	6
	E-Learning	3
	Academic Language Proficiency	3
Library	Systems	3
	Information Support	2
	Circulation	2
	Cataloguing	4
	Acquisitions	3
Student Services	Office of the Registrar	2
	Psychological Services	3
	Administrative Support	4
Student Accounts	Bursaries	3
Resources and Operations	Human Resources	13
	Exams	1
Not stated		11
Total sections and units:		121

Although results cannot be generalised to represent all sectors of the institution, the groups that participated (as reflected in Tables 4.4 and 4.5) offer a reasonable representation that, in addition to the data collected in the interviews and the subject literature, can be used to guide the suggestions for a workplace information literacy framework. In total, 30 sections and units participated in the study.

4.2.2. Results on information needs

This category of the questionnaire focused on the information needs experienced by respondents and the information related challenges they experienced when they need information. It covered the following: frequency with which their job requires information; their ability to locate, analyse and assess the value of information; negative experiences when searching information; the sources they used when seeking information to execute

their job; their ability to synthesise, interpret, evaluate and apply the information they found for presentations; their perceptions of the impact workplace information literacy competency could have in carrying out their tasks; their perceptions on their ability to determine their need for information and effectively and efficiently complete an information task; their opinion on whether information literacy training should be part of computer literacy training; and their opinion on whether people who are not equipped with workplace information literacy skills could face any information challenges or miss out on opportunities.

Respondents were not asked about the nature of their job related information needs since the main issue for this study was a focus on the need for workplace information literacy training. Some findings on typical work related information needs were, however, noted in Chapter 2 in the discussion on the i-skills workshop (section 2.7.2), private investigators (section 2.7.4) and fire fighters (section 2.7.5).

4.2.2.1. Findings on the frequency of the job-related information needs

All the respondents (121) answered the question on the frequency with which they require information related to their jobs. Table 4.6 (a) reflects the responses.

Table 4.6(a): Frequency of job-related information needs

	Frequency N= 121	%
Daily	95	78.5
Weekly	16	13.2
Monthly	10	8.3
Total	121	100

Most respondents, 95/121 (78.5%) require information on a daily basis to carry out their job related tasks. All in all, a need for information on a weekly basis accounts for 16/121 (13.2%), whereas a need for information on a monthly basis accounts for 10/121 (8.3%). The 78.5% that need information on a daily basis seems to be a clear indication that information plays a significant role for the majority of respondents. Table 4.6(a) is therefore continued to reflect the frequencies of those respondents with degrees only in order to observe the information need frequency trend as per degree level presented as Table 4.6(b).

71

Table 4.6(b): Information needs frequency based on qualifications

Frequency of information need N=95	Bachelor's degree	Honours degree	Master's degree	Doctoral degree	Total
Daily	23	16	27	8	74
Weekly	1	3	2	5	11
Monthly	4	3	2	1	10
Total:	28	22	31	14	95

It must be noted that Table 4.6(b) concerns respondents with Bachelors' degrees and upwards only therefore the total figure is 95/121 which is 78.5%.

4.2.2.2. Findings on information skills abilities: locating, analysing and assessing the value of information

Out of 121 questionnaires 112 (92.6%) respondents rated their information skills abilities. The 4-point Likert scale options allowed for strongly agree, agree, disagree, and strongly disagree. Table 4.7 provides statistics on respondents' perceptions of their skills in locating, analysing and assessing the value of the information accessed. These skills have been grouped together since they are associated with the key facets of information literacy.

Table 4.7: Perceptions of skills to locate, analyse, and assess the value of information accessed

	Frequency N=112	%
Strongly agree	28	25
Agree	76	67.9
Disagree	5	4.4
Strongly disagree	3	2.7
Total	112	100

Table 4.7 indicates that out of 112 responses, 76/112 (67.9%) respondents agreed and 28/112 (25%) respondents strongly agreed that they have the skills to locate, analyse and assess the value of information. Respondents who alleged that they did not have the skills to locate, analyse and value the information accessed were 5/112 (4.4%), and 3/112 (2.7%) respondents strongly disagreed. When adding the responses, a total of 104/112 (92.9%) felt

72

confident and very confident about their skills, while 8/112 (7.1%) had no confidence in their skills (disagree and strongly disagree). The positive response on confidence in their information literacy skills is also in line with findings reported by Al-Daihani and Rehman (2007), Chou *et al.* (2008:257-258) and Donnelly and Craddock (2002).

4.2.2.3. Negative experiences when searching for information

Although many challenges and negative experiences are associated with information seeking, responses were collected only on information overload, information anxiety and misinformation as of most importance to workplace information literacy. Responses are reflected in Table 4.8.

Respondents had to mark one of the options on the Likert scale per category for each of the options: information overload, information anxiety and misinformation. The respondents indicated their experiences with all three options: on the options, respondents who replied on information overload were 112/121 (92.6%), those who replied on information anxiety were 101/121 (83.5%), and 99/121 (81.8%) replied on misinformation.

Table 4.8: Negative experiences with information seeking

Opinion on negative experience in information seeking	% Information overload N=112		% Information anxiety N=101		% Misinformation N=99	
Strongly agree	14	12.5	11	11	8	8.1
Agree	57	50.9	37	36.6	28	28.3
Disagree	31	27.7	36	35.6	44	44.4
Strongly disagree	10	8.9	17	16.8	19	19.2
Total	112	100	101	100	99	100

It is not clear why respondents did not respond on all issues. For purposes of clarity each aspect is discussed separately.

- Information overload elicited 112/121 responses, with 57/112 (50.9%) agreeing and 14/112 (12.5%) strongly agreeing that they experience information overload. The combination of the agreement pattern equals 71/112 (63.4%). A total of 31/112 (27.7%) respondents disagreed, followed by 10/112 (8.9%) that strongly disagreed that they experience information overload challenges. The combination of the

73

disagreement pattern equals 41/112 (36.6%). The majority of respondents thus experience information overload.

- The information anxiety option was answered by 101/121 repondents, with 37/101 (36.6%) agreeing and 11/101 (11%) strongly agreeing that they experience information anxiety. The combination of the agreement pattern elicited 48/101 (47.6%). It is also noted that 36/101 (35.6%) disagreed and 17/101 (16.8) strongly disagreed that they do experience information anxiety. The combination of the disagreement pattern equals 53/101 (52.4%). There is thus a very close divide between those who experienced information anxiety and those who are not experiencing information anxiety.

- The last option, dealing with misinformation was answered by 99/121 respondents. Out of 99 respondents, 44/99 (44.4%) disagreed whilst 19/99 (19.2%) strongly disagreed that they experience misinformation. The combination of the disagreement pattern equals 63/99 (63.6%). This is followed by 28/99 (28.3%) who agreed and 8/99 (8.1%) who strongly agreed that they experience misinformation. The combination of the agreement pattern equals 36/99 (36.4%). Although a number of respondents experienced misinformation, it is not as high as the negative experiences with information overload and information anxiety.

Although respondents felt confident about their skills to locate, access, analyse and value the information accessed as depicted in Table 4.7 they in contrast experience high percentages of information overload and information anxiety and to a slightly lesser extent misinformation as depicted in Table 4.8.

4.2.2.4. Preferences for information sources to execute job

At the Central University of Technology, Free State various information sources are available for use by academic staff, students, and administrative and other staff members. Out of 121 responses, respondents had the latitude to select more than one option and replied to the question about their preferences for information sources in order to execute their job as reflected in Table 4.9. Those that did not respond are reflected in the next column after the responses percentage column.

Table 4.9: Preferences of information sources for job execution

Information source	Frequency = 121		Frequency = 121	
	Responses	%	No responses	%

74

Local intranet	74	61.2	47	38.8
Administrative documents	2	1.7	119	98.3
Institutional policies	65	53.7	56	46.3
Databases the library subscribes to	54	44.6	67	55.4
Peer reviewed and accredited publications	50	41.3	71	58.7
Conference papers	46	38.0	75	62
Internet search engines	98	81	23	19
Known websites	81	67	40	33
Social networking sites	1	0.8	120	99.2
Other	0	0	0	0

The majority of respondents which accounts for 98/121 (81%) rely on internet search engines, followed by 66.9% which is 81 respondents relying on known websites. A total of 74/121 (61.2%) of respondents rely on the local intranet for information. Databases that the library subscribes to are used by 54/121 (44.6%) respondents, and peer reviewed and accredited publications are used by 50/121 (41.3%). The option for the use of institutional policies was selected by 65/121 (53.7%) respondents. Conference papers were selected by 46/121 respondents accounting for 38%. This is followed by 2/121 (1.7%) respondents who use administrative documents. The last option, namely social networking, was selected by only 1/121 respondent (0.8%). No one suggested other options. There is thus a very strong preference for the use of internet search engines and known websites. This is in line with findings by Highton and Newton (2005:115), and Lloyd and Somerville (2006).

4.2.2.5. Information skills: ability to synthesise, interpret, evaluate and apply information for presentations

Once the information has been accessed from different information sources, staff must be able to synthesise, interpret, evaluate and apply the information. Out of 121 questionnaires, 109 respondents answered this question. Respondents rated their skills as demonstrated in table 4.10:

Table 4.10: Skills to synthesise, interpret, evaluate and apply the information for presentation

Perceptions of abilities	Synthesise information N=109	%	Interpret information N=109	%	Evaluate information N=109	%

Strongly agree	28	25.7	28	25.7	30	27.5
Agree	72	66.1	71	65.1	70	64.2
Disagree	9	8.2	10	9.2	8	7.3
Strongly disagree	0	0	0	0	1	1
Total	109	100	109	100	109	100

From the responses 72/109 (66.1%) respondents agreed that they are able to synthesise information, and 28/109 (25.7%) strongly agreed. The combination of the agreement pattern which is 100/109 (91.7%) illustrates that respondents are confident about their ability to synthesise information. Only 9/109 (8.2%) did not feel confident (disagreed); no one selected the strongly disagree option. A total of 71/109 (65.1%) respondents agreed that they are able to interpret information and 28 (25.7%) respondents strongly agreed. The combination of the agreement pattern is 99/109 (90.9%), reflecting very strong confidence in the ability to interpret information. Only 10/109 (9%) respondents did not feel confident about their ability (disagreed) whereas no respondents strongly disagreed. From the responses 70/109 (64.2%) respondents agreed that they are able to evaluate the information and 30/109 (27.5%) strongly agreed, thus a combination of the agreement pattern which is 100/109 (91.7%), which again reflects very strong confidence in the ability to evaluate information. A figure of 8/109 (7.3%) respondents indicated that they experience challenges with information evaluation, and only 1/109 accounting for 1% was very concerned about his/her ability (strongly disagreed). The combination of the disagreement pattern amount to 9/109 (8.3%).

Overall, respondents were very positive about their abilities to synthesise, interpret, and evaluate information for purposes of presentation. Possibilities are that respondents might have overestimated their skills.

4.2.2.6. Impact of workplace information literacy on competitive advantage

The question was about the impact of workplace information literacy competency on competitive advantage in carrying out one's information tasks. Out of 121 questionnaires, 120 respondents answered this question. The respondents had to answer this question with reference to themselves. They had to rate their response on a Likert scale of 4 ranging between 'strongly agree' and 'strongly disagree'. The responses are reflected in Table 4.11.

Table 4.11: Perceptions of potential impact of workplace information literacy on gaining a competitive advantage to carry out information related tasks

Perceptions on the potential impact	Frequency N=120	%
Strongly agree	55	45.8
Agree	55	45.8
Disagree	7	5.9
Strongly disagree	3	2.5
Total	120	100

From the responses 55/120 (45.8%) respondents agreed that workplace information literacy will give them a competitive advantage to carry out their tasks. Another 55/120 (45.8%) of respondents strongly agreed to this statement therefore there is wide agreement where 110/120 (91.7%) agree on the positive impact workplace information literacy will have on gaining a competitive advantage. Only 7/120 responses (5.9%) disagreed that workplace information literacy carries an impact on a person gaining competitive advantage and 3/120 (2.5%) strongly disagreed. When the disagreement pattern is combined the figures are still very low at 10/120 (8.3%).

4.2.2.7. Need for skills to effectively and efficiently complete an information task

Out of 121 responses 120 respondents answered the question on the need for skills to effectively and efficiently complete the information task. Although respondents indicated that they are able to determine their information needs, they suggested that they did not feel that they had the skills to effectively and efficiently complete information tasks. Responses are depicted in Table 4.12:

Table 4.12: Need for skills to effectively and efficiently complete information tasks

Perceptions on needs for skills	Frequency N=120	%
Strongly agree	33	27.5
Agree	67	55.9
Disagree	16	13.3
Strongly disagree	4	3.3
Total	120	100

77

From the responses 67/120 respondents (55.9%) agreed that they were able to determine their information needs, but they needed skills to effectively and efficiently complete the information tasks. The need for such skills was further supported by 33/120 (27.5%) respondents who strongly agreed on the need for skills to effectively and efficiently complete information tasks. When the agreement pattern is combined, the majority of respondents 100/120 (83.3%) seemed to agree that they need skills to complete information tasks. Only 16/120 (13.3%) disagreed and 4/120 (3%) strongly disagreed that they did not need skills to be effective and efficient in completing information tasks. When the pattern on disagreement is combined it equals 20/120 (16.7%) and the figure is still very low.

4.2.2.8. Inadequate workplace information literacy skills resulting in missed opportunities

All 121 respondents answered the question on whether inadequate workplace information literacy skills result in people missing out on opportunities. Respondents had to rate their perceptions on a 4-point Likert scale that ranged between 'Strongly agree' and 'Strongly disagree' options. Their responses are reflected in Table 4.13.

Table 4.13: Potential for lack of workplace information literacy skills to cause missed opportunities

Perceptions on potential	Frequency N=121	%
Strongly agree	74	61.1
Agree	43	35.5
Disagree	2	1.7
Strongly disagree	2	1.7
Total	121	100

The majority of respondents, 74/122 (61.1%), strongly agreed that people not equipped with workplace information literacy might miss out on opportunities. They were supported by 43/121 (35.5%) who agreed to this. The combination of the agreement pattern is 117/121 (96.7%). There is thus a very strong perception that a lack of workplace information literacy skills might cause missed opportunities. Only 2/121 (1.7%) respondents disagreed and 2/121 (1.7%) strongly disagreed. The disagreement combination pattern on a lack of workplace information literacy skills causing missed opportunities is 4/121 (3.3%) and the figure is still very low.

4.2.3. Staff training needs analysis

In order for a training structure to be put in place, training needs analysis is very important. A group of questions was therefore included to collect participants' opinion on training needs.

4.2.3.1. Familiarity with search functions

A question was set to determine participants' familiarity with search functions found with databases, Google Scholar and search engines. The numbers of those who did not respond are reflected in the column after the responses percentage column. Respondents could choose more than one option, and therefore percentages combined with the no response will add up to 100%. Responses are reflected in Table 4.14.

Table 4.14: Familiarity with search functions

Search functions	N = 121		N=121	
	Responses	**%**	**No Responses**	**%**
Basic search functions	103	85.1	18	14.9
Advanced search features	60	49.6	61	50.4
Saving search profiles	95	78.6	26	21.4
New features	0	0	0	0
None	0	0	0	0

The majority of respondents, 85.1% (103/121), indicated that they were familiar with basic search functions, whilst 60/121 (49.6%) were familiar with advanced search functions. A total of 95/121 respondents, (78.6%) are familiar with saving search profiles. None indicated familiarity with new features. The option for none was also not answered.

4.2.3.2. Familiarity with referencing

Since the respondents were given the latitude to select more than one option on familiarity with referencing the combination of percentages for responses and non-responses presents the frequency to be 121 (100%). The figures for non-responses are reflected next to the responses percentage column. Table 4.15 reflects respondents' ratings of their familiarity with referencing, plagiarism and self-plagiarism, the use of reference management software

and personal information management. Respondents could respond to more than one option.

Table 4.15: Familiarity with referencing

Reference and related techniques	N = 121		N =121	
	Responses	**%**	**No responses**	**%**
Referencing techniques	100	82.6	21	17.4
Plagiarism and self-plagiarism	64	52.9	57	47.1
Use of reference management software	34	28.1	87	71.9
Personal information management	1	0.8	120	99.2
Not familiar with any	9	7.4	112	92.6

A total of 100/121 (82.6%) respondents indicated that they were familiar with referencing techniques, 64/121 (52.9%) were familiar with plagiarism and self-plagiarism and only 34/121 (28.1%) were familiar with the use of reference management software. Familiarity with personal information management rated 1/121 (0.8%) and those not familiar with any rated 9/121 (7.4%).

This implies that there is a need for training on plagiarism, self-plagiarism, and especially the use of reference management software and personal information management to improve staff members' knowledge and skills regarding issues related to referencing.

4.2.3.3. Preferences for training formats

Respondents could select more than one option. The number of responses not indicated in any option is reflected in the 'no response' column in Table 4.16. Since they could select more than one option the percentages when combined with the no response rate presents the frequency to 121 (100%). Respondents were given the option to select from the most preferred to the least preferred formats. This is reported in Table 4.16.

Table 4.16: Training format preference options

Training preferences	Order of preference & frequency: N =121									
	Most preferred (1)	%	Second choice (2)	%	Third choice (3)	%	Least preferred (4)	%	No responses	%
Individual training (i.e. one-on-one)	44	36.4	19	15.7	9	7.4	11	9.1	38	31.4
Tailored group session (for example for people from a section such as units, sub-units, etc.)	26	21.5	46	38	14	11.6	4	3.3	31	25.6
During new staff induction programme	9	7.4	16	13.2	30	24.8	21	17.4	45	37.2
General workshop for people from different departments	6	5	8	6.6	23	19	45	37.2	39	32.2

Individuals rated their preference for training format options ranging from most preferred to the least preferred with varying figures. The description used to explain the interpretation uses training format preference plus highest figure per option. The training preferences of respondents from the most preferred to the least preferred are presented as follows:

1. The most prefered taining format as indicated by respondents is individual training at 44/121 (36.4%) responses, being the highest figure in that option.

2. The highest score for the second choice for training format is tailored group sessions at 46/121 (38%) responses, that being the highest figure in that option.

3. The highest score for the third choice among training preferences is during new staff induction with 30/121 (24.8), being the highest responses in that option.

4. The least prefered training format which is a general workshop for people from different departments accounts for 45/121 (37.2%) responses.

4.2.3.4. Training medium preferences

Respondents were requested to rate their preferences for training mediums from the most preferred to the least preferred. Since respondents could choose more than one option, the frequencies when combined with the no response presents the frequency as 121 (100%).Table 4.17 depicts respondents' order of preference as rated on a Likert scale of 1 to 6, as follows (1= mostly preferred and 6 = least preferred):

Table 4.17: Preferences for training mediums

Mediums of training	Order of preference & frequency: N =121												
	Most	%	Second	%	Third	%	Fourth	%	Fifth	%	Least	%	No	%

	preferred (1)		choice (2)		choice (3)		choice (4)		choice (5)		preferred (6)		responses	
Webinars	7	5.8	6	4.9	11	9.1	10	8.3	14	11.6	20	16.5	53	43.8
Video conferences	2	1.7	15	12.4	17	14	17	14	21	17.4	4	3.3	45	37.2
Multimedia programmes	4	3.3	18	14.9	28	23.1	21	17.4	4	3.3	4	3.3	42	34.7
Face to face instruction	47	38.8	13	10.7	4	3.3	36	29.8	3	2.5	2	1.7	16	13.2
Self-paced learning through an electronic management system	16	13.2	19	15.7	11	9.1	12	9.9	22	18.2	4	3.3	37	30.6
Mobile delivery	2	1.7	3	2.5	8	6.6	6	4.9	16	13.2	31	25.6	55	45.5

Table 4.17 presents individuals' preference for training mediums choices ranging from most preferred to the least preferred with varying figures. The criteria used to explain the interpretation employs training medium preference plus highest figure per preference. The training mediums preferences from the rating of 1-6 representing 'mostly preferred' to the 'least preferred' were as follows:

1. Most prefered medium of training in terms of the highest figure in that option is face-to-face instruction with 47/121 (38.8%) responses.

2. Self-paced learning, when the highest figure in that category is applied, is the second choice with 19/121 (15.7%) responses.

3. Multimedia programmes was selected as the third preferred choice when applying the highest figure in that category with 28/121 (23.1%) responses.

4. The fourth choice in terms of the highest figure in this category is face-to-face training, with 36/121 (29.8%), which was also the most preferred with 47/121 (38.8%) responses as noted in number 1.

5. The fifth choice in terms of the highest figure in this option is self-paced learning with 22/121 (18.2%) responses.

6. Mobile delivery was the least preferred with 31/121 (25.6%) responses in terms of the highest figure in that option.

Webinars and video conferences received the highest figure of 20/121 (16.5%) responses meaning they didn't feature as a prefered choice from 1-6 options provided.

The highest figures determined the rating preferences as chosen by repondents. That indicates that face-to-face instruction is the mostly preferred means of instruction. It is followed by self-paced learning.

4.2.3.5. Preferences for training intervals

In the 121 completed copies of the questionnaire, respondents could select their preferences according with their choices ranging from 1 to 5. Since they were given the option of selecting more than one option, the frequencies include those that did not respond. To ensure that percentages add up to 100%, the numbers of percentages of no responses are also included. Respondents rated their preference for training intervals on a scale of 1 (most preferred) to 5 (least preferred) as depicted in Table 4.18.

Table 4.18: Preferences for training intervals

Training intervals	Order of preference & frequency: N =121												
	Most preferred (1)	%	Second choice (2)	%	Third Choice (3)	%	Fourth choice (4)	%	Least preferred (5)	%	No responses	%
Monthly	22	18.2	18	14.9	4	3.3	9	7.4	19	15.7	49	40.5
Quarterly (i.e. every three months)	21	17.4	39	32.2	16	13.2	11	9.1	2	1.7	32	26.4
Bi-annually (i.e. once every semester)	9	7.4	12	9.9	44	36.4	12	9.9	3	2.5	41	33.9
Annually	3	2.5	9	7.4	11	9.1	24	19.8	21	17.4	53	43.8
Ad hoc training (on demand training)	23	19	9	7.4	4	3.3	10	8.3	21	17.4	54	44.6

Individuals rated their preference for training intervals ranging from most preferred to the least preferred with varying figures. The criteria used to explain the interpretation uses the training interval preference plus highest figure per interval. The preferences for training intervals are as follows:

1. The most preferred training interval in terms of the highest figure in that option is *ad hoc* training with a 23/121 (19.0%) respons rate.
2. Second choice preference with the highest figure in that option is the quarterly intervals option with 39/121 (32.2%) responses.
3. Bi-annually (once every semester) came third when the highest figure in the preference category is applied, with 44/121 (36.4%) responses.
4. The annually option was selected as the fourth choice when the highest figure in this category is selected, with 24/121 (19.8%) responses.

83

5.   It is also noted that when the highest figures for the least preferred option is selected, (*ad hoc* training and the annually option) share the same figure, being 21/121 (17.3%) of the responses.

4.2.3.6. Computer literacy skills rating

This question was answered by 119 respondents out of 121. Respondents were asked to self-rate the level of their computer literacy on a 5-point Likert scale ranging between poor (1) to excellent (5). Their responses are reflected in Table 4.19.

Table 4.19: Computer literacy skills rating

Computer literacy skills	Frequency N=119	%
Poor	1	0.8
Average	13	10.9
Good	32	26.9
Very good	39	32.8
Excellent	34	28.6
Total	119	100

The rationale for this question is supported by Bruce (1999:34) under 1.6 in Chapter 1 that one cannot talk about information literacy and exclude computer literacy as information literacy without computer literacy is incomplete. A total of 39/119 (32.8%) respondents rated their computer literacy skills as very good, 34/119 (28.6%) rated their computer literacy skills as excellent, whereas 32/119 (26.9%) rated their computer literacy skills as good. When the rating pattern of these three is combined, the majority of respondents are of the opinion that their computer literacy skills are good, and therefore they can be considered to be computer literate. Only 13/119 (10.9%) rated their computer literacy proficiency as average whereas 1/119 (0.8%) rated their skill as poor.

4.2.3.7. Information literacy skills rating

From 121 questionnaires, 119 respondents answered this question. Respondents were asked to self-rate their information literacy skills, on a 4-point Likert scale ranging from average (1) to excellent (4). The ratings are described in Table 4.20.

Table 4.20: Information literacy skills rating

Information literacy skills	Frequency N=119	%
Average	22	18.5
Good	45	37.8
Very good	35	29.4
Excellent	17	14.3
Total	119	100

The reason for excluding poor and very poor from this question is that it is perceived that the selected sample would have a certain level of information skills. From the results 45/119 (37.8%) respondents rated their information literacy skills as good, 35/119 (29.4%) rated their skills as very good, whereas 22/119 (18.5%) rated their skills as average. It has to be noted that those who rated themselves as having excellent information literacy skills accounted for only 17/119 (14.3%). The question was asked differently in Table 4.10 the reason being to determine if participants could detect when the same question was asked differently. Earlier in Table 4.10, respondents acknowledged their skills with regard to synthesising, interpreting and evaluating information.

4.2.4. Workplace information literacy corporate strategic plan

In order for workplace information literacy to be a formal part of organisational processes, it has to feature into the organisational strategic plans. Respondents were therefore questioned on their opinions on the impact of workplace information literacy as part of an organisational strategic plan.

4.2.4.1. Importance of workplace information literacy training for organisations

Out of 121 questionnaires, 119 respondents answered this question. Table 4.21 reflects respondents' rating of the importance of workplace information literacy for organisations on a 4-point Likert scale, ranging from 'strongly agree' to 'strongly disagree'.

Table 4.21: Workplace information literacy skills' importance for organisations

Importance of workplace information literacy skills for organisations	Frequency N=119	%

Strongly agree	82	68.9
Agree	32	26.9
Disagree	3	2.5
Strongly disagree	2	1.7
Total	119	100

From the table 82/119 (68.9%) respondents strongly agreed and 32/119 (26.9%) respondents agreed that workplace information literacy training is important for organisations. If the agreement pattern for agree and strongly agree is combined, the rating comes out very high at 114/119 (95.8%). Only 3/119 (2.5%) respondents disagreed whilst 2/119 (1.7%) strongly disagreed. When the disagreement pattern is combined, the figure is 5/119 (4.2%), which is still very low. It is evident from Table 4.21 that the respondents believe that workplace information literacy training is important for organisations in general.

4.2.4.2. Workplace information literacy as part of the university's corporate strategy

From 121 questionnaires, 119 respondents answered this question. Respondents had to state whether the university management should take workplace information literacy as part of the corporate strategy. Table 4.22 reflects their responses.

Table 4.22: Workplace information literacy training as part of the corporate strategy

Part of corporate strategy	Frequency N=119	%
Strongly agree	76	63.9
Agree	38	31.9
Disagree	2	1.7
Strongly disagree	3	2.5
Total	119	100

A total of 76/119 (63.9%) respondents strongly agreed that workplace information literacy should form part of the corporate strategy, followed by 38/119 (31.9%) who agreed. When the agreement pattern is combined, 114/119 (95.8%) respondents agreed that workplace information literacy should form part of the corporate strategy. Only 2/119 (1.7%) respondents disagreed and 3/119 (2.5%) strongly disagreed. The combination of the disagreement pattern is 5/119 (4.2%). There is thus an overwhelming response for workplace information literacy to be included as part of the corporate strategy.

4.2.4.3. The university's workplace information literacy support plan

All 121 participants answered the question requiring them to state whether there should be a university training support plan for workplace information literacy. The results are provided in Table 4.23.

Table 4.23: Opinion on whether the university should have a training support plan for workplace information literacy training

Need for corporate training support plan	Frequency N=121	%
Strongly agree	75	61.9
Agree	42	34.7
Disagree	2	1.7
Strongly disagree	2	1.7
Total	121	100

From the responses 75/121 (61.9%) respondents strongly agreed that the university should have a training plan in place for workplace information literacy training. A total of 42/121 (34.7%) respondents agreed. When the agreement pattern is combined 117/121 (96.7%), the majority of respondents agree that there should be a training plan for workplace information literacy. However, 2/121 (1.7%) respondents disagreed and 2/121 (1.7%) strongly disagreed that the university should have a training plan for workplace information literacy. When the disagreement pattern is combined the figure remains low at 4/121 (3.3%).

4.2.4.4. Workplace information literacy: enforced or optional

Respondents had to indicate whether workplace information literacy should be enforced or optional. From 121 responses 120 respondents answered this question. Table 4.24 indicates the preferences as rated by the respondents.

Table 4.24: Workplace information literacy as enforced or optional

	Frequency N=120	%
Enforced	66	55

87

Optional	54	45
Total	120	100

Out of 120 responses 66/120 (55.0%) respondents indicated that workplace information literacy should be enforced whereas 54/120 (45.0%) stated that it should be optional. The majority in this regard felt that it should be enforced.

4.2.4.5. Workplace information literacy assessment and certificate provision

From 121 questionnaires, 120 respondents answered this question. Respondents had to state whether there should be a workplace information literacy assessment and certificate, and Table 4.25 reflects the respondents' opinion ratings as follows:

Table 4.25: Assessment and certification for workplace information literacy training

Need for assessment and certification	Frequency N=120	%
Strongly agree	29	24.1
Agree	62	51.7
Disagree	3	2.5
Strongly disagree	26	21.7
Total	120	100

Out of 120 responses 62/120 (51.7%) respondents agreed that there should be an assessment and a certificate, with 29/120 (24.1%) respondents strongly agreeing. When the agreement pattern is combined 91/120 (75.9%), a considerable majority of the respondents support the opinion, whereas 26/120 (21.7%) respondents strongly disagreed and only 3/120 (2.5%) disagreed on the need for the assessment and certification of workplace information literacy skills. When the disagreement pattern is combined, it adds to 29/120 (24.1%). The figure still remains low.

4.2.4.6. Workplace information literacy as part of job descriptions

Out of 121 questionnaires, 119 respondents answered this question. Table 4.26 presents the views of respondents when asked whether workplace information literacy should be included as part of job descriptions.

88

Table 4.26: Workplace information literacy as part of the job descriptions

Part of job descriptions	Frequency N=119	%
Strongly agree	27	22.7
Agree	58	48.7
Disagree	5	4.2
Strongly disagree	29	24.4
Total	119	100

From the responses 58/119 (48.7%) respondents agreed, with 27/119 (22.7%) respondents strongly agreeing that workplace information literacy should form part of job descriptions. When the agreement pattern is combined – 85/119 (71.4%) – a considerable majority of respondents agreed on the need for workplace information literacy to be part of job description. A total of 29/119 (24.4%) respondents strongly disagreed and only 5/119 (4.2%) disagreed that workplace information literacy should form part of job descriptions. When the disagreement pattern is combined, 34/119 (28.6%) respondents disagreed on the need for workplace information literacy to be part of job descriptions.

4.2.4.7. Workplace information literacy testing as part of the recruitment process

Form 121 questionnaires, 119 respondents answered this question. Respondents had to state their opinion as to whether workplace information literacy testing should form part of the employee recruitment process. Table 4.26 presents the findings.

Table 4.27: Workplace information literacy testing as part of the recruitment process

Workplace literacy and recruitment	Frequency N=119	%
Strongly agree	17	14.3
Agree	45	37.8
Disagree	16	13.4
Strongly disagree	41	34.5
Total	119	100

From the responses, 45/119 (37.8%) of the respondents agreed and 17/119 (14.3%) strongly agreed that workplace information literacy should form part of the recruitment process. When the agreement pattern is combined, the majority of respondents (62/119;

89

52.1%) are in favour of workplace information literacy testing being part of the recruitment process. A total of 41/119 (34.5%) respondents strongly disagreed, supported by 16/119 (13.4%) who disagreed. The disagreement pattern 57/119 (47.9%) is, however, slightly in the minority in cases where the majority and minority have to be weighed.

The last two questions were open-ended. The results are indicated in Tables 4.28 and 4.29.

4.2.4.8. Who should be trained in workplace information literacy?

Same answers were similarly colour-coded so as to reflect the exact picture and the results are presented in table format. From 121 questionnaires, 109 respondents answered this question. Respondents were given the latitude to describe in their own terms who should be trained on workplace information literacy and Table 4.28 reflects that.

Table 4.28: Whom should the training include?

	Frequency N=109	%
Individuals	14	12.8
Everybody / All personnel / All staff	62	56.9
Academic staff	33	30.3
Total	109	100

Out of 109 responses, 14/109 (12.8%) respondents chose individuals and the majority, 62/109 (87.2) respondents mentioned that everybody (employees, all staff) have to be included in the training. Academic staff was selected by 33/109 (30.3%) respondents. The combined opinion is that all staff should be trained. If some of the sentiments can be stated verbatim as written in the questionnaires, these are some of what the respondents wrote:
"Everyone."
"Everyone working within the institution."
"Every employee."
 "All staff."
 "All staff members."
"Whoever needs training or want it."
"Supervisors people in high management + employees in general."

90

4.2.4.9. Responsibility for workplace information literacy training

Table 4.29 presents the opinions stated by questionnaire respondents when responding to the open-ended questionnaire on who should take responsibility for workplace information literacy. The results are presented in table form since the same answers were manually colour-coded to reflect exactly what each respondent stated. Out of 121 questionnaires, 107/121 (88.4%) respondents completed this question.

Table 4.29: Workplace information literacy job responsibility

Department	N=107	%
Library	62	57.9
HR and Library	6	5.6
Library and Research	2	1.9
Training and Development	10	9.3
Library and Training and Development	4	3.7
ICT	8	7.5
HR	6	5.6
E-learning	2	1.9
Education	2	1.9
Institutional Planning	2	1.9
Humanities	1	0.9
Those that need it	2	1.9
Total:	107	100

From 121 questionnaires, only 107/121 (88.4%) respondents completed this question. Amongst the 10 departments suggested by respondents, the library rated high with 62/107 (57.9%). It is followed by Training and Development, with only 10/107 (9.3%) responses. The rest are below 10%. Some respondents included the cooperation of the library and other sections. Some of the sentiments stated by respondents are reflected in exact format as quoted from the questionnaires verbatim:

"The library."

 "Library."

"LIC."

"Library centre."

"The library in coordination with work skills development."

"IT department/section & human resources."

91

4.2.4.10. Further recommendations suggested by respondents

A total of 20 respondents replied to this questions**.** An open-ended question was posed to gather respondents' suggestions on other issues related to workplace information literacy not covered in the questionnaire.

From their responses, the following is highlighted:

- Need for availability of information and access to information for all employees.
- Workplace information literacy should include the management and retention of information.
- Knowledge management (i.e. people leaving the organisation and taking information with them) should be included in workplace information literacy.

These are what respondents wrote as quoted directly from the questionnaires:

"Information should be available and all employees should have access. Management and retention of information is important and should be addressed. People leaving take information with them and those left will have problems".

"I encourage and support information literacy pertaining job description in order to increase productivity of employees".

"I think the workshop/training should be provided for all people working in the library because our main aim is to assist as customers service should be our main priority it will help if we give accurate information".

"Yes! I believe that there must be a feedback from those who participated in the workplace information literacy skills training to assess if the training was a success or not. Suggestion: It will be better if a follow up would be made on the participants few weeks or a month after the training".

Further recommendations included more questions as well as suggestions that were supposed to be included so as to broaden the scope of workplace information literacy.

"More questions that could be included:

- Do you know how to access workplace information?
- How do you prefer accessing this info?
- Should a booklet be published, updated & issued to all employees?"

92

Opinions on the information resources needs included the following as reflected in the verbatim quotations:

"Include questions which deal with resources, for example computers, faxes, telephones etc. which assist people to access information as and when they want to do so. Are there enough of them or not? Are people well trained to use them or not? Are resources equally distributed so that all have a fair chance/opportunity to access, analyse and interpret the information."

"Accessing restricted information, statistical information in SA poor, Friendlier access to "restricted" resources."

"In the university/workplace which is a relatively large organisation and more – training in for generic info (retrieval usage) should be standardized and regular."

"- Basic software installation and basic downloading of different software training

 - Basic training of casual labourers on computer literacy

 - Basic skills highly needed"

Other participants mentioned that the language of the questionnaire is technical to the researcher's area of specialty and their responses are indicated as follows:

"The questionnaire is strongly dedicated to information literate persons. Terms used are more information literate focused."

"It's hard to tell, the questionnaire focuses on content that is technical to the researcher's area of specialisation."

Involvement of the university management has also been recommended and the quotation is stated verbatim as follows:

"Yes, time and encouragement by management, time should be created for those who are interested to be trained should be given the opportunity. Management must support and reward those interested after training."

Other respondents felt that the questionnaire has covered every aspect of workplace information literacy by expressing their opinion as follows:

"The questionnaire has managed to cover all areas of information literacy."

"In my opinion everything is roughly covered and well commended."

"Questionnaire covered and addressed important issues."

"The questionnaire covered a lot."

One opinion was particularly focusing on training to be included as part of the staff induction process and the opinion is quoted verbatim as:

"Training when starting at any institution."

93

Other respondents mentioned that they did not have anything more to say and their quotations are stated verbatim:

"Not at the moment."

"None that I can think of at this time."

One comment had no link to the questions posed in the questionnaire but was however relevant to the workplace. The quotation is reflected verbatim in that regard:

"Recruitment: Less temp appointment and more permanent staff. Image of CUT gets tarnished temps are less committed and loyal to the brand of CUT."

4.3. QUALITATIVE DATA ANALYSIS AND INTERPRETATION OF THE RESULTS FROM INTERVIEWS

This section presents the results of the data collected from individual interviews as mentioned in Chapter 3. The purpose of the interviews was to get views and opinions regarding workplace information literacy from senior and influential staff members with the purpose of designing a framework for workplace information literacy. Purposive, convenience sampling was used to select these participants. The participants in the interviews are depicted in Table 1.3 in Chapter 1 of this study. An interview request with the interview guide attached was sent through emails to people in the management and decision-making structures of the university. Interviews were scheduled with participants in their offices and at times convenient to them. Interviews lasted for forty five minutes to an hour. A free attitude interview technique (discussed in section 1.7.1 in Chapter 1 and section 3.4.4 in Chapter 3 of this study) was used. This technique is useful since it elicits information about people's attitudes, experiences and feelings. Dyantyi (2009:74) considers this technique to be useful to elicit rich information. A tape recorder was used to record the data and some notes were taken. One of the participants was not comfortable being recorded and requested that the tape be replayed after the recording. Thereafter the participant felt that the researcher could use the information freely. Amongst the twenty participants interviewed, six were professors and six held doctoral degrees.

Participants were given labels P1 to P20 so as to maintain anonymity as promised and participants representing committees were labelled with the committee titles as well. Not all participants represented committees. All participants for the interviews had to sign the form of consent (available in Annexure E).

4.3.1. Results from interviews

The purpose of the interviews was to collect data that could support the design of a workplace information literacy framework at CUT and that suits staff members' needs and expectations. The following issues were addressed:

- Perceptions on the importance of workplace information literacy.
- Role of information in developing expert skills in fields of speciality.
- Importance of training addressing workplace information literacy.
- Whether workplace information literacy should be a prerequisite for employment at the CUT.
- Skills to be addressed in a workplace information literacy training programme.
- Recommendations on the nature of workplace information literacy training.
- Whether workplace information literacy skills should become part of CUT's corporate plan, and if so, which recommendations can be offered.
- Responsibility for workplace information literacy training.
- Challenges foreseen for workplace information literacy training at CUT.
- Suggestions for awareness initiatives to ensure the implementation of workplace information literacy training.
- Suggestions for monitoring the application of workplace information literacy.
- Opinion on the role the library should play in promoting workplace information literacy.
- Roles specific committees should play in ensuring that workplace information literacy becomes an institutional practice (only put to committee members with regard to their specific committee).

4.3.1.1. Perception on the importance of workplace information literacy

It must be noted that it emerged during interviews that participants were not familiar with the concept 'workplace information literacy'. The researcher took it upon herself to explain to participants what workplace information literacy entails before proceeding to the next question. Some participants stated that their perceptions about the importance of workplace information literacy were that it assists in deepening expertise, imparting information to others as well as sharpen research skills. Workplace information literacy will also assist workers to become aware of their rights. Participants' verbatim responses include the following:

P1 (The participant requested clarity on the question and after the clarification, acknowledged) "It is a new concept to me."

P6 "Question is in fact relevant, it should have just been rephrased but, I do not understand why people say they do not understand it as it is clear and straight forward."

P20 "Well I eh workplace information literacy within a higher education institution I think enables someone to 1 Ja[2] you know more about your area of expertise, it also helps in imparting information to other people, eh also helps in uh sharpening your research skills, and it also helps in you know."

P15 "Eh I think it actually eh information literacy, workplace information literacy actually helps to make people actually aware about what's going on particularly at the workplace Ja because eh that's people will know about that information, it also help them know about their rights at the workplace eh things like the equity policy and that kind of thing that affect them Ja, it would quite be useful."

4.3.1.2. The role information plays in developing expert skills

Participants, recognising the importance of information in the era in which we are living, were of the opinion that information plays a vital role in developing expert skills in their fields of specialty. They considered information as an enabler, with the emphasis on current information and staying abreast. This applies for fields ranging from teaching to legislation and administration. They highlighted the importance of tacit (embedded) knowledge. Participants' opinions are reflected in the following selection of verbatim quotations:

P1 "I think the role information plays is an enabler, it enables you to deliver what is expected of you, is more like you must know the embedded knowledge about the subject matter."

P6 "Information is critical, we need to know about new developments so that when we teach students it must be about what is currently happening, otherwise we will feed them with out-dated information."

P9 "A very important role especially my field, maybe I can just give you some background information my field of expertise is labour so what we work with is legislation, case law and

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[2] Ja is the Afrikaans word for yes, and is often found in some local English conversations.

daily developments in the labour market so information plays a very important role and specifically to be updated on a daily basis because although we have legislation that can remain unchanged for quite a while specifically in law and labour law we call it labour law can set precedents which supersedes all legislation. So if you are not updated on that change of information what can happen is you will be in a position where you either advise your employer incorrectly or you deal with a case incorrectly and you might prejudice a client or an employee or employer in this instance so it is very important."

P8 "Information is absolutely important, we live in an information era."

P16 "Basically here we work with students and we need to know developments with regard to student governance and everybody who works in area countrywide will tell you that we need to know about constant developments so that we can make an informed decision."

Participants used words such as "an enabler", "crucial", "important", "absolutely important", and "critical resource" to describe the value of information in their working lives. These words serve as good evidence to describe the value of information for workers and the academic working environment.

When explaining how information plays a role, participants stressed accurate and reliable decision-making and avoiding risks, bench-marking and establishing best practices, supporting information needs for students in their every-day lives, gaining a wide perspective of issues at stake, problem solving, gaining insight into developments in the institution and wider environment, saving costs, developing academic and administrative leadership, measuring progress and specialising in a field. Apart from subject knowledge, knowledge of internal as well as external information in the institution is important.

Participants' remarks are reflected in the following selection of verbatim quotations:

P3 "I believe, every time, information which is updated continuously will help me to fulfil my duties as a faculty administrator which is basically leadership day and [day to day leadership of the faculty] daily management."

P5 "It assist[s] in improving the services and to know any new development in that area of specialty."

97

P7 "You measure your progress against the information that is available let me cite you one example if you have a target of 50 research publications per year we have to measure as we go along what progress is it that we are making against the said target and measurement therefore in any development is very important."

P8 "Without information decision making will be very difficult and you don't want to make wrong decisions...information is absolutely important in decision making as I said, otherwise it results in high risk decisions, and people spend a lot of money that go down to waste so certainly we need information". This view is also supported in the research reported by Cheuk and Anderson (2002) arguing that a workforce that is not information literate has the potential to lead the organisation into unwarranted financial obligation.

P18 "It facilitates decision making, provide opportunities to benchmark processes for which I am accountable and provides best practices."

P10 "Our role is to support academic projects of the institution like in any higher education institution, students are people who inquire about a number of issues; it may be that which is related to their studies or sometimes on issues that are more social. It is very important that one is very much informed in terms of the information that students might inquire on their daily life at a higher education institution is concerned. So I really will rate in the particular aspect probably 5 out of 5."

P3 "In my field of specialty information plays a role where I get informed and updated on new issues that are pertinent to my field of specialty like in administration."

P14 "In my particular field of specialty...the registrar is responsible keeping all the information about the institution and disseminating it to either internal or external stakeholders. So eh it is very important, it is of vital importance that eh information play[s] a role in developing expert skills because we cannot have any skills or any expertise in your role without having some information pertaining to a particular field of specialty so as a [high ranking official] I have to have all the information about what this position entails, what this environment entails, what the entire sector entails, what are the expectation of our customers and so forth and so on so it is important that one gathers all the necessary information in order to do one's work with eh ease and efficiency."

Information supports participants to: deliver on what is expected of them, offer a quality service, be up-to-date on new developments in their fields, make decisions, conduct

98

research, solve university problems, and to update and sharpen the knowledge they bring into the workplace and keep track of changes. It was clear that without information it would be a challenge for participants to grow and offer the type of work and service required by the university.

4.3.1.3. Importance of training in workplace information literacy

Regarding the value of training addressing workplace information literacy, participants stressed the impact workplace information literacy can have on realising the importance of fields of specialisation, building confidence, offering motivation to improve services, and to support efficiency and effectiveness in workplace. From participants' inputs it was very clear that training in workplace information literacy will certainly play a significant role in their working lives, especially in empowering them to have a deeper understanding of their fields and to improve the quality of service they provide on a regular basis. Participants acknowledge that once training is provided, they will be able to be effective and efficient as their confidence levels will increase.

Participants' opinions are reflected in the following selection of verbatim quotations:

P1 "It will help people to know the importance of really their fields [the significance of their area of specialty]... It will build up confidence in the workers."

P5 "Employees will be developed in their area so as to render quality services."

P10 "Training play[s] a major role in order for us to be effective and efficient as employees."

P7 "Managers will be empowered to manage effectively."

Some remarks reflected on: the fact that there were no attempts regarding workplace information literacy initiatives at the time of the study; the need to acknowledge that people do not have the necessary skills and knowledge; and the need to admit that staff needs training. From participants' responses it appears that the university needs to put the necessary measures in place to address workplace information literacy training through a strategic plan in order to empower the employees.

The observed current challenges are presented in the following selection of verbatim quotations from staff members:

99

P2 "I do not think it is really happening at the CUT at this stage."

P9 "We do not not [double not intended] spend sufficient time in training our people on gathering information, on the ability to realise that they need information, how to obtain the information and how to execute it in their daily work and what happens is you get people that instead of developing the skill they get I wanna call it lazy, they depend on others to do it for them so it's very important and I think we really need to address that especially at CUT."

P4 "Without training one cannot expect workers to be informed to access information."

P6 "I have seen old people working here from the old Technikon who are still using out-dated methods like old books, those are the people who have to attend the training as they are used to the old ways of doing things."

P13 "Well, we take it for granted that people know when eh who work with information in particular sections and units of the institution...But actually people don't know."

P17 "I think that's key because uh sometimes people don't recognise that whatever that is being shared to them the importance of that particular information so uh if people can be trained on information literacy that would come in very handy."

The need for workplace information literacy training was also stressed by participants. They elaborated on the need for training by adding suggestions that people should be trained on how to access and extract information (and not as much on information overload), the latest technology as well as databases. It was further suggested that the Library should take the lead in this regard, and that training should be on a continuous bases. The idea of institutional support and support in specific sections also featured.

Participants' opinions are reflected in the following selection of verbatim quotations:

P8 "Yes I think we need to train people, I think the training should be how to access, rather than information overload but rather how to extract information, the correct information."

P3 "Training has to be continuous because we are living in a developing world and the importance of workplace information literacy is to make aware of the changes that are taking place in their institution, in the country and the universe as a whole. Remember we always hear people say "I am not sure of this one"...If we do not train our people... we will be left

100

behind that's why we need not just a once off training but continuous training will be important... not just by reading books but using the latest technology, there are latest databases, train them on how to use databases."

P16 "Training is crucial and the library should take lead in this."

P18 "I support it, prepared to participate and encourage other staff members to attend; especially those in the section I manage."

4.3.1.4. Workplace information literacy as prerequisite for employment at the Central University of Technology, Free State

On this issue, some participants supported the notion of workplace information literacy being a prerequisite for employment whereas others stated that it should not be a prerequisite. Various reasons were given as to why workplace information literacy should and should not be a prerequisite for employment at CUT.

The opinions of participants supporting information literacy as prerequisite are reflected in the following selection of verbatim quotations:

P6 "Absolutely, people need to know about different search engines and search strategies like how to formulate keywords when searching, people need to know about our own library databases and this will improve the quality of our teaching."

P10 "Absolutely because how are you going to be effective I mean you might be rendered inefficient not probably because you are lazy or something just because you are not well informed in as far as your work environment is concerned."

P17 "Definitely uh definitely because as you know that often staff need to attend conferences, workshops and stuff, as a representative of either a unit or department so it's important that people are equipped or trained on how to use the information that they acquire so I would say that that should be a prerequisite."

Other participants, however, felt that workplace information literacy should not be a prerequisite. They argued that the focus not be on the prerequisite for employment but rather on training people on appointment. A related strategy was adopted by the Griffith University

101

where staff information literacy was not enforceable but employees were expected to update their skills (Bruce, 1994).

The opinions of participants' not supporting workplace information literacy as a prerequisite are reflected in the following selection of verbatim quotations:

P2 "I don't think a prerequisite I think maybe after a person has started."

P4 "I should say it should be a requisite but a possibility is that not to make it a prerequisite before you are employed but that you could be trained in your workplace to access information so not necessarily a prerequisite."

P13 "Well I don't know, I don't think it can be a prerequisite because is not a common thing, we always make something a prerequisite when it is common...to have workplace information literacy is helpful because it will make things easier."

P14 "I do not necessarily think so because you know uh the university, CUT is a very hierarchical institution, you have people at the top, there are highly literate people with Masters and Doctoral degrees, professors and so on uh who possess vast amounts of information about the institution and then at the bottom of the institutional hierarchy we have people who can even hardly spell their names so you can't make information literacy a prerequisite if you are targeting to employ people at lower levels of the institutional hierarchy because now you will be locking them out".

This view point is supported by Participant 16 who felt that "If it becomes a prerequisite the poorest of the poor will be affected".

Participants also recommended various types of interventions instead of enforcing training in workplace information literacy. The orientation and induction of new staff members could play a significant role in addressing the challenge of workplace information literacy. Upon appointment, new recruits should be put through information literacy training so as to empower them to perform their tasks with efficiency and effectiveness. After this, people could just be updated through workshops to upgrade their knowledge (as mentioned by Participant 19). Such an approach was also noted by Macoustra (2003:9) as discussed in Chapter 2, section 2.4.

Other participants (quoted verbatim here) recommended some intervention mechanisms:

P11 "We call it orientation kind of a training in whatever... they need to be given information on what they are going to be or expected to do in their respective places."

P15 "but what I do say is that it should be something that must be part of the induction process..."

P18 "At least orientation on the value of using it, where to find it and who can assist one to find it – it is embarrassing to be in a university where knowledge should be generated yet decisions are made without vigorously debating issues of common interest."

P19 "When you are new we train you, later on we update you on new technologies."

4.3.1.5. Skills to be addressed in a workplace information literacy training programme

The need for communication to be included into workplace information literacy training was mentioned by participants. It was felt that if the information cannot be communicated, it serves no purpose.

The participants' opinions have been captured in the following selection of verbatim quotations:

P3 "Communication and listening and latest technology."

P4 "I will talk on my area, is the occupational health services here...management skills and communication skills."

P7 "I would add the fifth one that is the communication, I may have all the information in the world but if I don't have an effective way to communicate it to the next section or to the next colleague it's not useful at all. Otherwise it is meaningless if I keep it for myself, it's becoming an individual exercise."

P10 "Skills such as how to communicate the information, if you have information if you don't know how to communicate the information is a problem."

P16 "I think basically how to communicate the information is crucial."

It is clear that how information is communicated is considered very important and thus it should be part of a workplace information literacy programme. Participants alleged that it is of no value if the information acquired cannot be communicated to the intended recipients.

Other aspects recommended for inclusion into workplace information literacy training concerned information search and research skills, as well as the need to be able to identify an information need, to focus, to capture information for the bigger picture, to analyse and interpret data, to know where to look for information in a focused manner, to repackage information, to apply information, and to execute information tasks. Participant 16 also mentioned the need for knowledge of how to access and interpret policies since this affects employees at some point in their working lives. It was also mentioned that the training should be computer-based and offered in a laboratory. The method of training would differ according to the level of participants. The individual level of readiness should be recognised, and awareness of the need for workplace information literacy skills training should be acknowledged.

Participants' opinions are reflected in the following selection of verbatim quotations:

P1 "The skills they need is preferably search skills, the research, they need to be able to conduct any type of research of any type, of some sort so that the information they can source the information they need. They must as well be able to do some references." (It might be interpreted as pointing to the need for a workplace information literacy programme to enable people to do research related to their tasks, regardless of whether they are academics or in administrative positions).

P4 "Right, I think the skill first of all of identifying the information needed and to identify that in a focused way to be able to focus on specific aspects and then how to access the information, that's training in the access of all the different sources of information."

P7 "Eh, first of all where to find the information, and where to find the information has to do with organisational sense...Thirdly the ability to analyse the information and the information can be of quantitative and qualitative nature. Fourthly to yes, make use to interpret the newly gained knowledge."

P9 "...then the skill to be able to look for information, right is also a skill, if you don't have it you can develop it, It's something you can be trained in which I think we don't really do... I think we can focus on that a little bit more. Training our people where to look...know that you

need information how to look for it and then the most important one is how you take that information and you make it practical and you make it executable in your work."

P11 (The respondent asked clarity on what the question entails) "...for instance in my case, skills to be able to look for articles, skills to be able to look for books... specific skills indeed for me it would be and I think for academics it will be the skill to do the engine search on the research area, to be familiar with the software that they can use." (Although some of the formulation sounds odd, this is how the respondent formulated it).

P16 "How to access and interpret policies and crucial information should be part of this."

P13 "Firstly I think people need to be made aware of the access to information act, that's a democratic principle and right that people must know and be made aware of that."

P13 "... is that people should be I think trained on how to store, how to retrieve and how to use information and what the information means in terms of law in an institution and that it is not something to paddle at will and so on … mostly is stored electronically that so people need to know where they store it I think in most instances know what information is because they deal with it every day so they know what it is they should provide cause the difficulty sometimes is accessing the information and being able to retrieve the information so a critical aspect of information literacy therefore in this division is knowing how to store the information logically in categories that will make it easy to retrieve it's always the problem … We need a common method of storing the information so that whoever comes after is able to retrieve the information." (Knowledge management and personal information management are implied in this statement).

P10 "Skills in packaging information should also be one of the prerequisites that will assist."

P14 "At the lower levels we need basic literacy thing like ABET for instance… at higher levels you would expect that those people should be conversant with things like policies, uh all the pieces of legislation… policy interpretation… acts that govern a particular industry."

P8 "The nature it would be difficult but I would say that is it's a low level worker they might want a workshop high levels it might be a manual, IT and computer."

P9 "Right, I think one of the skills first of all one of the skills is a an awareness, you must develop that skill of awareness that to be able to conclude a certain assignment you require

105

information so that's your first skill so you must be aware of your surroundings so it's quite an awareness skill, then skill to be able to look for the information."

P15 "I think you need to also know about your job description."

4.3.1.6. Recommendations for the nature of workplace information literacy training at the Central University of Technology, Free State

Some participants argued for workplace information literacy training to be offered during the induction process for new staff members (for example as part of a two-week programme); this could include getting information from the intranet and offering refresher courses. These responses are in line with responses arguing for workplace information literacy not to be a prerequisite skill for employment but rather part of the induction process (discussed in section 4.3.1.4). They also mentioned the value of the library and noted that the responsibility for training could lie with departments, faculties and the Human Resource Department.

The following is a selection of verbatim quotations from participants who felt that workplace information literacy training should be part of the new staff induction programme:

P7 "I assume it must be part of an induction programme."

P9 "I think one should start, you know when have induction of new staff [during the new staff induction programme], I think we and I hope we will be addressing it that very soon in HR, there is a drive towards our induction programme. Instead of having a one day induction with all these you really like fly by the information, you know in government...you'll have like two weeks induction where you almost go like and it's compulsory, you must undergo it...so for example we have the intranet, we have these websites that you can get information from so in our induction programme we must really teach our new staff where they must look for information, how they must search for information really spend a day or two on that... and then don't leave it there because there's changes over time especially in our technology, have an annual refresher course for your people to say "right guys let's go for a refresher, I would almost want to say make it compulsory so that your people stay updated."

P10 "…even if a refresher course on the latest in the market in as far as services are concerned, I mean we need to be able to benchmark sometimes so that we can be at the top of the game."

106

P19 "People should be regularly be updated as new information comes in."

P13 "Well I have already alluded to that when people get on board in any position there need to be training about information, first they must be trained about the value of the library."

P15 "For the nature of workplace information... eh I would actually perhaps say that eh yes it is necessary that it is incumbent upon particularly each department or each faculty to make sure that members actually eh are inducted into the faculty."

As far as the nature of training is concerned the following selections reflects the verbatim opinions of participants:

P1 "First thing is to compile the programme so that we can start as soon as possible and see thereafter results we are wrapping [the results that emerge after the compilation and programme implementation]."

P4 "Right, it should be training programmes that should take place over relatively short periods but frequently, so it should be repeated for new personnel but also for personnel that are already employed for a longer period to keep them updated so it should be continuous training programme, not days on end but an afternoon, one or two hours and that being repeated as well as further training being provided but not short periods of time."

P11 "Let me put it this way, it always takes two forms, more face to face but not only face to face but practice-based training for me, in other words where people are taken through a system for example when you go for searching and then they are shown exactly how to search for books, how to access various websites and then...basically it will be a small group but much more practically orientated where a person seating behind a computer and trying to access and implement strategies that they are taught."

P5 "On job training services...workshops to be done on regular intervals, four times a year could assist."

P17 "I would say that it can be eh a friendly sort of environment where everybody is free to interact, free to make mistakes, and actually free to learn from others."

The programme design, time schedules, training format and the training environment are addressed in the preceding quotations. Training should be as soon as possible and not only aimed at new staff members, but should also include staff who have been with the institution for a while. According to participants training should be presented as short, but frequent sessions, for example at least four times a year preferably in the afternoon, it should allow for frequent updates, groups should be small, and the training should be practically orientated. A very useful contribution was the reference to the training environment, which can be interpreted as a constructivist learning environment (for example as promoted in the work of Kuhlthau, 2004).

4.3.1.7 Workplace information literacy as part of the Central University of Technology, Free State's corporate plan

Participants expressed their opinions on whether workplace information literacy should be part of the CUT corporate plan using words such as "forcible", "mandatory", "no choice" and "compelled". One participant, however, noted that although compulsory, it should be aimed at supporting staff.

Participants' responses are reflected in the following selection of verbatim quotations:

P1 "I suspect so. If it is part of the strategic plan, it becomes forcible to everybody, that is my take on it."

P6 "If it is part of the CUT corporate plan then it will be mandatory, people will have no choice, will be compelled to do it."

P9 "That's why I say it can be an issue that is compulsory so we that assist our staff to keep on developing that skill."

Two participants alleged that if it is part of the corporate plan then it will be part of the staff induction programme:

P2 "I think it should, yes, and I think maybe it should be incorporated into the induction plan or a separate entity where people are informed."

P9 "Yes, I think like I've said now that if it's part of the corporate plan then it will be included in your like induction, is one of your foundation of the corporate plan ne, so definitely."

The induction of new staff was considered very important as it frequently came up in the interviews. A number of reasons were given as to why workplace information literacy has to be part of the corporate plan. Participants noted that information literacy is mentioned in the Transformation Agenda (CUT, 2006-2014) and that if it is part of the corporate plan it can be aimed at the university's values, vision, mission, objectives, efficiency and effectiveness. (As a knowledge-generating organisation, workplace information literacy can be aligned with the university's Vision 2020 (CUT, 2006-2014). Workplace information literacy can also be aimed at promoting the well-being of staff and ensuring that it is not taken for granted that people know how to deal with information, and that they know about policies, and other issues that can affect their work.

These points of view are also reflected in the following selection of verbatim quotations from participants:

P3 "I'll support that 100% because if you check Vision 2020 especially out of the three [four] pillars [People, Plans, Product, Pennies] there's one saying building the foundation of the transformation agenda is talking about information literacy people must be informed, people must share knowledge and that will enhance the corporate image of the institution if each and every individual employee can know about Vision 2020 that is part of information literacy."

P16 "Like I have mentioned that we are in the business of generating knowledge as a university and you will realise that this concept workplace information literacy is in direct line with Vision 2020 and the vision and mission of this university so definitely it is indirectly part of the corporate plan already."

P4 "Yes I would say that workplace information literacy is such an important aspect specifically a higher education institution that it should be part of the corporate plan."

P10 "Yes, absolutely, remember as I've already earlier we need to be effective, we need to be efficient and there need to some planning as far as that is concerned, each and every service area should be having a plan in place in how they are going to organise themselves in as far as being empowered regarding the kind of service they provide to students."

P11 "Undoubtedly it should become part of the CUT corporate plan, corporate plan meaning it must be it must be part of our... values, the vision and mission."

109

P14 "In fact yes, yes eh in that we will ensure that there is buy in, the university has the development of its workforce at heart eh you are not perceived as an employee who can come and just do 1 2 3 and then leave the institution, but your development will be key to the institution attaining its objectives, its vision, so I think this should become part should become part of the corporate plan."

P13 "I think so, I think we take it for granted and that's why we struggle with getting things done because people do not know in their field what is often, people struggle with understanding what is happening in their own field...Part of that corporate plan is that people must know policies that affect their work thoroughly."

4.3.1.8. Responsibility for workplace information literacy training

A mixture of opinions was elicited in participants' suggestions on who should take responsibility for workplace information literacy training, including the Library and Information Services, Human Resources, Organisational Development, and even the university management.

Participants mentioned that the library staff is better skilled in information literacy and should be the ones who take responsibility for it. Some participants were of the opinion that the Library and Information Services should take responsibility with the support of units like Organisational Development within Human Resources. Managers can also take responsibility in conjunction with the Library and Information Services, where management can actually drive it.

As far as the Library and Information Services is concerned, participants made the following remarks (verbatim quotations):

P3 "People who are working in the library and information services because you talk research, those people are our resource personnel you want knowledge it's in the library I hope and believe that has to be the LIS, that's the responsibility of the LIS."

P5 "We have the library, and then the authorities, which is the management should drive that."

110

P8 "Well it could be varied the library is the source of information and I'm sure they will participate how to access the information, information not only in books nowadays we got library without walls called just a virtual library out there and we need the knowledge so eh got that type of training and so I think academics persons who's teaching or it could be a workshop or it could be a seminar or a talk. So all these are different forms of information."

P13 (The library) "The people in the library know the value of information and how information is used, stored accessed and so on. So I think they need to play a certain role, but I think ultimately that is eh what I often call a transversal role it's a role that resorts across the institution and therefore every manager is responsible for information where they sit, where he or she sits and across the institution we have a core responsibility for information... Firstly and of course there's a primary role the LIC plays because they are professionally trained in information ... managers and employees, especially managers across the institution are responsible for workplace information and workplace information literacy."

P15 "I think the section that deals with training and skills training should actually be eh take responsibility or even the library at times in some cases might also take that responsibility eh ... (Organisational development) particularly initiating members into the system because that's precisely what I think that office is responsible."

P18 "Library staff with the support of human resources."

From the arguments, for the university management, organisation, and individuals to take responsibility for workplace information literacy, participants' opinions are reflected in the following selection of verbatim quotations:

P10 "Managers should take responsibility, from executives to senior managers should take that responsibility to immediate supervisors there should be some kind of a coordination actually executive managers are aware of the goals I mean when we look at the CUT Vision 2020 they are aware of our objectives and then should be able to cascade that down so that we are able to plan in relation to our vision and mission and objective."

P17 "Uh I think management, first at the same time I would say second is you as an employee it's also part of your responsibility it's also part of your responsibility enforcing that eh you know that eh this kind of trainings or information literacy training to take place, because eh number one for management it's important like we said in the last question uh

111

it's important to communicate that you expect out of your employees and uh that is communicated as accurately as possible for you to get what you need out of them, in the same breath which answers to the second point that is about employees that you can't just sit back and say at the end of the day you have to account that I didn't know I was not told you know it's also part of your responsibility to make sure that this kind of facility or this kind of eh is made available to you so it's also in your interest to maybe suggest it to your manager."

P7 "I was never convinced that you have trained one by giving them for two days lecturers and by showing them around and giving lunch, that's no way of training people. In my mind is much more continuous training but I would also like to emphasise it is not the organisational responsibility only, it is also my responsibility as the individual and the analysis and the analogy I'm using... so it is also up to me as an individual to gain those skills."

Participant 17 felt that if workplace information literacy is the responsibility of the management, employees will have to give an account of what is expected of them, and they will also need to take some responsibility.

Participants who suggested Human Resources and Organisational Development noted that this kind of training lies with Human Resources, and that it should be done in conjunction with supervisors. It is especially important to set time aside for such training. The Centre for Organisational and Skills Development was also mentioned. In justifying these choices, the feeling was that staff from these sections were people who were suited to handle skills development issues; they can, however, share the responsibility with the Library and Information Service.

P11 "I think it should be HR. Human Resources is really responsible for this work."

P12 "I think organisational development together with our supervisors in conjunction with us as well as I said we might not realise our limitations."

P14 "This is all the recommendations that I would make is that the university should support such interventions, time should be set aside probably by HR particularly organisational development to ensure that people are trained on various skills of information literacy."

P16 "I would suggest that the Centre for Organisational and Skills Development should basically take lead in this as it involves employee growth. It has to do this in conjunction with the library."

4.3.1.9 Challenges for workplace information literacy training at Central University of Technology, Free State

Various challenges were noted with regard to workplace information literacy implementation, such as the time factor, attitude, self-efficacy and confidence, staff buy-in and resistance. Timing (which times will be the most suitable for staff) and resources such as money are also noted. Time, especially was considered a very important challenge. It was suggested that management and supervisors should plan in advance to build information literacy training into their year programmes, and that attendance is monitored. Views on time-related challenges are reflected in the following selection of verbatim quotations from participants:

P9 "I think one of the biggest challenges currently with any training is first of all time. I think our time is very limited so that will really be a challenge that is why I say everybody will play their role, and that's why is important to draw in your management your executive and senior management to develop this training programme way in advance so that you already have that we should almost I want to say put it in our year programme like we have all our important dates there. This training that's institutional wide there must be say first two weeks in a year and the last two weeks of the year must be dedicated to that so time is definitely one of the challenges and then there is this culture of "**is not my responsibility**" and delegating...so that's why if you get your buy-in from top management it can cascade down because otherwise you won't be able to bridge that challenge. And then I think the third one is our staff can be very insecure, instead of being confident that they will be able to do this to utilise it, you get staff that's very, they would rather not go into the unknown if I can call it that so we also need to get the buy-in from your individuals, I think basically that's your three challenges but we can overcame it."

P12 "The is that time [availability of time to attend the training]."

P16 "Time, definitely time will be a big challenge. This thing should be made part of the supervisors' and managers' responsibility as it will ensure that training attendance is monitored."

113

P17 "Uh I think eh the biggest challenge will obviously be the question of time or timing you know as we know uh most probably at the end of the year we are only focused on what is it that was set for me to do this year and we all for wanting to do that and not caring about that comes afterwards, so I think definitely timing would be the key issue the key challenge uh ja, the availability of resources but which can be negotiated because there's a direct to the institution as well so money and timing could be eh the challenges."

As for attitude and resistance, it was noted that workplace information literacy training will be seen as a new thing and that its importance might not be understood. Staff's ego (as in 'they know everything') and a lack of commitment from management might also cause problems. The importance of willingness to participate and to see it as part of the bigger picture of the university is also noted. Participants did not only mention the attitude of staff but also came up with suggestions as to how this challenge can be addressed, like having the buy-in of the university management and all the stakeholders, and ensuring that the training is interesting. Participants' views are reflected in the following selection of verbatim quotations:

P1 "I suspect I am not sure because it is a new thing, definitely there will be some sort of resistance from people because they will be asking a lot of questions [what workplace information literacy is] that we really do not have answers to, why this now, what is the importance of the whole thing."

P2 "I think people's willingness and attitudes because I often see especially with the research not everybody is on board, not everybody think that we are a university and part of working at a university especially academics is to be part of research as well so getting people to want to do this is really a challenge, think opportunities are there but people do not make use of the opportunities."

P10 "Attitude, I mean we need to have a buy-in. You see in most cases in a work environment if all stakeholders don't have a buy-in into a project then you have a challenge but immediately you are able to explain, I mean the significance of that, how that will be fulfilling to the employees in as far as the training is concerned. And it should also be interesting training [the training should be stimulating], make it interesting for those who are at the forefront of service delivery."

P6 "Ego, people think they know and they might feel that "I am a professor therefore what can a B Tech tell me?" not knowing that you are in fact an expert in the field."

114

P14 "Challenges, eh the first one will be lack of commitment by one management, if management is not interested in workplace information literacy, then nothing will happen, and also to the people to be trained themselves, if they are not cooperative, if they do not make themselves available to these kinds of interventions then nothing will happen. Again everything we do that is money if there is no budget for this intervention then nothing will happen, so you have to have management support, management buy-in, you have to have employee support, employee' buy-in and besides you have to have money to roll out the training initiatives."

P12 "I think for attitude to change it must be driven from the top."

P18 "Attitude – staff thinking they know without focusing on the benefits."

4.3.1.10 Suggestions for awareness initiatives on the implementation of workplace information literacy training

Suggestions on raising awareness for initiatives on implementing workplace information literacy include communication from the Vice Chancellor (VC), allowing people to get used to the idea, encouragement from Faculty Boards, promoting new attitudes and new ways of looking at things, campaigning, involving Human Resources and performance management, word-of-mouth, presentations by experts, initiatives from the Library and Information Services and to align the value of information literacy training to task completion.

Participants' views are reflected in the following selection of verbatim quotations:

P1 "I think the awareness to make staff aware they can be approached from the angle of the VC himself, maybe he can write a communiqué selling this idea of WIL and then from there, just keep on populating it to people and then we get used to it especially we see it as a necessity for the institution."

P3 "Although you are doing this, I think it's high time you address faculty boards on this issue."

P7 "I think and this is also part of our institution philosophy [regarding awareness raising] where we said narrative is one way of reporting but to have the quantitative information is far more important to measure success, so I think it's also about promoting new attitudes and

new way of looking at things. In modern organisations you don't always tell yourself you are smart, you measure how smart you are."

P10 "Campaigns for those who'll be responsible for that, I think somehow I'm of the opinion that HR should also come on board because HR need to explain to employees how important it is for them to be effective, I mean we have performance management system that has to be linked with performance management to say you know in order to be effective and efficient in your domain you need to participate in this it's also part of the buy-in that has to be established."

P14 "…word of mouth also call eh meetings workshops indabas where you would invite experts to come and address the people so that people can understand what is happening and keep on emphasising the importance of workplace information literacy. Otherwise people will pay lip service without ensuring that the training initiatives are put in place."

P18 "The library circulation and marketing its programmes the same way that private providers do – programme X, who needs it, the value it can add to your job, when and where it is offered, how long it takes managers attached to library staff for support – periodical "how can I help?" type of arrangement where the library extend a hand to someone who might not be aware that there is always information to add value on what he/she is working on and regular awareness campaigns and presentations."

Some participants substantiated their opinion by adding operational arrangements such as emails, and notice boards:

P2 "I want to say maybe notices and e-mails but I have seen that doesn't necessarily always help... I sometimes go personally to individuals and it is very time consuming maybe this programme can be facilitated via directors, it goes back to people's willingness they must want to be part of that."

P14 "Awareness initiatives you know uh try and communicate, communicate with the people, use whichever form of communication available to a workforce electronic communication, put placards on notice boards."

P15 "I think like I've already mentioned like workshops, seminars, and that kind of things even eh putting information on the notice boards and the like I think it is very important."

P17 "I think eh in terms of awareness initiatives we can use facilities that we have to try to communicate to staff like notice boards in and around campus... so if these initiatives can be part of something that is already in existence, or be advertised in CUT's advertising platforms."

4.3.1.11. Monitoring of the application of workplace information literacy

With regard to the monitoring of workplace information literacy initiatives and compliance, participants raised views that focused on performance management and performance measurement in the KPA's (Key Performance Areas) and supervision focusing on the kind of work people are doing, and the level at which they are working. The suggestions by participants' 13 and 14 seem to place the monitoring of workplace information literacy as part of the strategic processes of the university, where monitoring is reported in meetings, and where an office is dedicated to deal with workplace information literacy and everything it involves.

The following selections of verbatim quotations reflect some of their views:

P7 "I think it will relate to the kind of work that people are doing and there [it] is also incumbent on the supervisor to look at the progress people are making the supervisor he or her should know what the role what is expected of people at a given level so the supervisor should be in the ideal position to assess that."

P9 "One can have it almost as part of your performance plan of staff member where your supervisor[s] monitor. Where supervisors were give an instruction or projects and you'll be able to see how long it takes this person to complete this now that this person has access can obtain the information well you['re] not dependent on other people ... if you are so dependent on other for information you can't get your own thing done and everybody is busy and your information is the last they attend to, so that is one of the ways supervisors can start monitoring how projects are dealt with are completed when staff are able to utilise the tools themselves."

P12 "I think it has to tie up with our performance management, and I think one has to be evaluated against those KPA's (Key Performance Areas)."

P17 "Eh I think with regard to monitoring I think this can be incorporated in the performance reviews of staff members 'cause luckily for our institution we are on the verge of implementing this performance management system so I think this can also be part of the

117

key performance area that can be included there and staff member can should be indicate where he or she been involved in terms of the information literacy."

P13 "I don't. I'm not an information science person but monitoring will be in your annual review but the monitoring can also be reviewed we have many meetings those are forms of monitoring whether proper information is being released and shared across the institution at meetings, that's a form of monitoring. The audit at the beginning of the year about information literacy but also meetings will indicate to what extend people know about what's happening in the institution and how they use that information."

P14 "Eh monitoring, look you have to have a champion of this you have to have somebody designated as a champion of information literacy in the workplace that person would spend all his or her time exclusively on this, the person should go around visit the different sections units divisions within the institution, eh check whether there are any interventions that these people are doing in terms of these training initiatives make suggestions, assist them to put plans and programmes in place so there has to be a dedicated office to this, one or two individuals working exclusively on this will assist otherwise if you give this to individual managers you know in different section to attend to this things then nothing will happen, they won't monitor themselves, you have to have to have something like a watchdog."

Participants who raised practical intervention strategies strongly focused on the use of IT. They also warned that continuous staff monitoring can be very cumbersome. The possibility of interaction with colleagues, and suggestion boxes, keeping a register for the attendance of training, as well as surveys and questionnaires on the value of training can be used. This is reflected in the following selection of verbatim quotations from participants:

P2 "I think that will be an IT issue if you want to monitor you able to pick the click and will IT be able to pick how much activity is there and maybe the concept can be enforced continuously maybe on a weekly basis or monthly basis but then again people might get fed up with it."

P6 "There are new technologies that are in place that are monitoring the implementation of such interventions and I think they should be used. I'm not an expert in this a colleague is currently busy with this tool."

P3 "Interaction with colleagues and suggestion boxes for now after we say we are a university of technology in true essence of a university of technology we'll be able to use sophisticated equipment, technological equipment to monitor that."

P4 "I think what monitoring is people should attend training sessions and that a register should be taken and kept of people that attended the different training sessions and that will be a more formal way of doing it, that is my suggestion."

P11 "I think you can actually establish whether it adds value by devising a very short questionnaire, to start asking whether they have been to this formal programme and how many times a year what value, whether this programme were valuable or not valuable at all but also for people to air their suggestions to say how the programme could be improved in that way can know whether the training is making any impact or impact or not."

P18 "Regular surveys/feedback seeking opportunities from users, sharing of feedback received."

4.3.1.12. Opinions on the role the library should play in promoting workplace information literacy

Participants were very positive about the fact that the Library needs to play a strong role since the staff has the relevant expertise and as such should spearhead the planning and implementation of workplace information literacy training, including the marketing and promotion. It was felt that when new staff members join the university, the Library should train them. People should also see the Library as a back-up they can turn to if all else fail and that the Library staff should be prepared and willing to take on this role. The Library should adhere to best practices. The Library could invite divisions to demonstrate what is available and what divisions could do.

The views and opinions participants gave on the role the Library should play are reflected in the following selection of verbatim quotations:

P1 "I think the Library can source the latest information around the topic, some books so that we can start reading about the whole topic."

P9 "I think a very important role, because that's your information centre, right, yes the Library will also play a role in assisting the training and development unit in training our people on how to use what is available but also to be like almost the backup if all else fails the

119

employee must know I've really tried but I could not succeed. I must now be able to contact my Library and Information Centre and there must be people there that is able and willing to assist me, not for the purpose of doing it on my behalf but maybe just guide me through the process... Almost like assisting with in-service training."

P11 "I think Library is very key to ensuring that this programme happens ... they need to able to use the Library to be able to access best practices on how things are done say your student registration. For academics you know it goes back to the extent to which they are able to access fresh information on their various disciplines, their various fields and also be able to align what they are doing to best practices elsewhere and mostly best practices can be accessed through the internet. Through the library to be able to obtain this information."

P13 "They can certainly when people come on board, they can induct them on how information is used and the value that the library and information in general in the institution."

P14 "Look, I think library is all about information, provision of information, whichever type of information you want so should actually be core of information literacy promotion initiatives, from time to time the library has to have programmes that they make people aware of that they should assist in rolling out and divisions should be invited to the library on regular basis to see what interventions are available like what the library normally do with book exhibitions ... but specifically on workplace information literacy. Library should in this kind of interventions be the core."

P16 "Library is the life blood as it is in direct academic support. The library should release trainers, promote workplace information literacy using effective strategies, make the training interesting and enticing for people to come forward."

P18 "To create awareness, extend a hand to help and help as when necessary."

4.3.1.13. Committees' roles

Participants representing committees were requested to comment on the role of committees with specific reference to the committee they were representing. Four committees were represented, namely the Research Committee, Library Committee, Institutional Forum and Employment Equity Committee.

Committee members stressed the importance of collaborating with the library as well as collaboration between committees. With regard to institutional research activities it is especially important to ensure that information is available to staff members, for example in the form of a booklet. Different committees can take on different roles. Participants made suggestions as to how they could be involved in making workplace information literacy part of the CUT processes. This included influencing and advising faculties, ensuring that feedback reports reach faculties (and other sections) and that workplace information literacy is part of the agenda of institutional meetings. The influence of committees could be at council and management levels:

"… the main thing will be for the committee to also have minutes and then maybe share the minutes with the deans because sometimes when people go for these meetings they don't give feedback to the faculties they come from because when we meet with the deans they do not know what is happening … I don't know at CUT when people are appointed or when people are they want to be active in research they don't know how to start or they don't know which criteria to use because should that be a common knowledge that maybe we need a booklet or a guide of what people need to know regarding the information."

The Library committee could, for example, make recommendations to faculties and develop a monitoring tool for implementation. The institutional forum might advise the university's top management on the importance of workplace information literacy. It is important for encouragement to come from top management: "the training of workplace information literacy is important so that it can be implemented from the top then cascaded towards the lower levels with ease as it will become an official organisation practice." "In other words, this will be compulsory." (*Verbatim quotation from a participant*).

It also needs to be ensured that all employees benefit from workplace information literacy training, and that it is not to the disadvantage of anybody. A verbatim quotation is: "The role of this committee is to improve the role of the poor of the poorest, it can advise the university management directly as workplace information literacy is intended to empower our ordinary people."

4.4. SUMMARY OF THE DATA ANALYSIS

The format of the data collected (questionnaires and interviews) dictates that similar concepts in the questionnaire and interview data be grouped so as to serve as a guide to a systematic process of designing a workplace information literacy framework envisaged for Chapter 5. The concepts have been grouped into a table form so as to reflect an organised

121

presentation of facts. All the elements stated in Table 4.30 are considered crucial towards the design and development of a workplace information literacy framework as posed earlier in Chapter 1 section 1.3 as a research question. The summary is presented according to categories.

Table 4.30: Summary of data analysis categories

University staff demographics category	
Organisational levels of staff.	From Table 4.2 it is clear that qualifications differ, ranging from Grade 12 to doctoral degrees. Out of 121 respondents who took part in the study, a total of 95 had degrees. Only 26 respondents did not have degrees. Not all staff levels have high qualifications. It is thus important to bear in mind that workplace information literacy should not be aimed only at academic staff and the institutional management positions, but at all levels, including the lowest levels. To put the reader into perspective and for the convenience of the reader, one interview participant addressing the plight of the lowest levels for including workplace information literacy as prerequisite for employment said, "*If it becomes a prerequisite the poor of the poorest will be affected".* It has been recommended in both questionnaire responses and interviews that all staff members should get the opportunity of being trained in workplace information literacy.

122

Time at the organisation	From Table 4.3 it is clear that although some people have been at the institution for a number of years, many have been there for shorter periods. When entering the institution, workplace information literacy training can be part of the induction and orientation of new staff members. Information relevant to the institution should be stressed such as institutional policies and job descriptions. Workplace information literacy training is, however, also necessary on an on-going basis as reinforcement and repetition; up to four such sessions a year was suggested.
Job designation and level of seniority	Tables 4.4 and 4.5 show that the nature of the job has an impact. Workplace information literacy training should have value for the specific positions and departments. It should be task-related. It has been mentioned that without information, decision making, service provision, teaching and learning, and learning about new developments in people's area of expertise would be a challenge.
Information needs	From Table 4.6 it seems that many staff members (78% of participating staff members) need information on a daily basis. A variety of information needs was noted ranging from legislation, academic studies, and even in relation to students' everyday lives. Information needs are closely related to the tasks to be completed.
Analysis of information skills needs	
Ability to locate, analyse and assess the value of information accessed	From Table 4.7 it seems as if staff members (92.9 %) are confident and even very confident about their ability to locate, analyse and assess the value of the information accessed. From the individual interviews the complexities of the skills in relation to

123

	work tasks, however, become clear. It was raised by interview participants that the skills to locate, analyse and value the information is crucial and that training should be provided in that regard. Means should thus be identified to balance participants confidence in their abilities (their levels of self-efficacy) against their actual abilities, and if necessary point out the need for training in abilities on which they may feel over confident. A number of additional information skills relevant to workplace were noted, namely communication, personal information management, accessing information restricted to the institution and statistical information. Communication especially was frequently stressed.
Experiencing of problems such as information overload, information anxiety and misinformation	From Table 4.8 it is clear that participants do not have serious concerns about information overload, information anxiety and misinformation. However, some other concerns that need to be addressed in workplace information literacy training can be noted from the data collected from the interviews. Participants hinted that negative experiences with information can be alleviated if people are trained on how to "extract" the right information.
Sources consulted to complete work related tasks (i.e. to complete the job)	From Table 4.9 it is clear that staff relies strongly on Internet related sources such as search engines (81% of respondents to the questionnaire). Although none of the respondents for the questionnaire mentioned other sources, a number of such sources were noted during the interviews. From the interviews it became clear that information sources external to the institution, such as

	databases and the Internet, are important, but also information sources internal to the institution such as policies.
Ability to synthesise, interpret and evaluate information	From Table 4.10 it appears that respondents are confident about their abilities to synthesise, interpret and evaluate information. From the interviews, it became clear that participants were interested in knowing more about how to access information in the correct manner and format.
Impact of workplace information literacy competency	An overwhelming percentage of participants (91.7% of questionnaire responses, reflected in Table 4.11) felt that workplace information literacy competence could have a great impact. This view was further supported during the interviews. It could, *inter alia*, impact on the self-confidence of staff, improvement in service delivery, saving the institution money, improving leadership, empowering staff, improving quality of teaching and learning, and measuring progress against set targets. What is important from this list is that workplace information literacy training should then be designed to ensure that it can achieve these. In other words, these need to be translated as outcomes for workplace information literacy training.
Effective and efficient task completion for presentation	It is noted in Table 4.12 that the majority of respondents need skills to effectively and efficiently complete information tasks. During interviews this was also stressed with an emphasis on storing the information for future use and communicating the newly acquired information.
Competitive advantage to be gained	Table 4.13 has shown that the majority of respondents (96.7%) have alluded to the fact that without workplace information literacy skills, people

125

	will miss out on opportunities. This is strongly supported by interview participants noting challenges such as decision-making. Without the right and up-to-date information students can be provided with out-dated information and poor decisions can be made, even decisions costing the university a lot of money. To ensure such a competitive advantage, the university's Vision 2020 can build on workplace information literacy as cornerstone, and workplace information literacy can be aligned with the university's vision.
Familiarity with search functions	Although it seems from Table 4.14 that the majority of responses (constituting 99% of respondents) are familiar with basic search functions and advanced search features, there are other search functionalities that need to be addressed in workplace information literacy training. Such functionalities were implied during the interviews (although not directly stated in such words): subscription to current awareness services (also known as alerting services), information dissemination and sharing (these can, for example, be addressed by facilities available for databases, and social networking tools available via the Internet).
Familiarity with reference techniques	According to Table 4.15 respondents are confident about their familiarity with referencing techniques, however the need for training on plagiarism, self-plagiarism and personal information management is necessary. According to interview participants there is, however a need for training in the use of reference management software and personal information management software.

Preferred format for workplace information literacy training	It has been stated in Table 4.16 that the majority of respondents (36.4%) would prefer individual training. Other formats such as general workshops are, however, also possibilities. A comment from the interviews hinted at constructivist learning opportunities: information literacy training should be conducted in a laboratory with computer facilities where people are allowed to make mistakes while they receive training.
Preferred medium of presentation for workplace information literacy training	From Table 4.17 it emerged that face to face instruction with 38.8% followed by self-paced learning with 15.7% are preferred by questionnaire respondents. This was supported by interview participants who stated that people should be trained using computers in a face-to-face setting where demonstrations are carried out by the trainer. Considering different views on mediums of presentations, this should be an institutional decision based on consultation with all staff members on all levels. It is also something to frequently monitor since preferences and available technology may change.
Preferred preferences for intervals of workplace information literacy training	According to Table 4.18, *ad hoc* training (on demand training) with only 19% has been chosen as the most preferred option by questionnaire respondents on this question. Some interview participants mentioned that workplace information literacy must be offered at least once every quarter and should not be a lengthy session. Considering different views on frequency and the length of sessions, this should be an institutional decision based on consultation with all staff members on all levels.

127

Computer literacy skills	Table 4.19 reflects strong confidence in computer skills. However, if workplace information literacy is taken to include all staff levels and jobs in the institution ("poorest of the poor" as stated by an interview participant) there might be a much bigger need to include computer literacy skills. Some respondents to the questionnaire also noted that computer literacy should form part of workplace information literacy.
Information literacy skills rating	Table 4.20 reflects strong confidence in information literacy skills. When considering the input from the interviews, many skills not normally spelled out in discussions of skills for information literacy or workplace information literacy, however, need to be considered, including: analysing and understanding job descriptions, university policies, and government acts. Communication skills, for example in sharing the newly acquired knowledge also came up frequently.
University' workplace information literacy strategic plan category	
Importance of training on workplace information literacy	According to Table 4.21 the majority of the respondents (95.8%) agreed that workplace information literacy is important for organisations. Interview participants were of the opinion that in order for the university to fulfil its Vision 2020 mission, it must adopt workplace information literacy as one of its values so as to maintain competitiveness in the academic market.
Need to include workplace information literacy as part of the corporate strategy	According to Table 4.22, 95.8% of questionnaire respondents mentioned that workplace information literacy should form part of the university's corporate strategy. Interview participants also came out in strong support for workplace information

128

	literacy to be part of the corporate strategy. There are, however, differences on whether it should be compulsory (strong support for this; with 63.9% and 31.9% of questionnaire respondents), and interview participants also supporting the need for workplace information literacy as part of the corporate strategic plan.
Training support plan for workplace information literacy from the university	Respondents in Table 4.23 (61.9%) agreed that the university should have a training support plan for workplace information literacy. Interview participants even mentioned that workplace information literacy could be included into the university calendar and that training should start as soon as possible. Participants noted that at the moment the university is taking it for granted that staff need training. With the support plan in place and in line with workplace information literacy being part of the corporate plan as mentioned in the previous block this could be an institutional decision based on consultation with all stakeholders.
Enforcement of workplace information literacy	The majority of questionnaire respondents (55%) as indicated in Table 4.24 indicated that workplace information literacy should be enforced or mandatory. Interview participants were of the opinion that it is important to carry out the training during the new staff induction process. Interview participants further mentioned that if workplace information literacy were part of the university's corporate plan, then it would be mandatory.
Need for assessment and certification	According to Table 4.25, 75.9% of questionnaire respondents indicated that workplace information literacy should include assessment and a training certificate. Other possibilities noted include

129

	monitoring and evaluation after the training by management and supervisors.
Inclusion of workplace information literacy as part of the job description	A total of 71.4% of questionnaire respondents (indicated in Table 4.26) agreed that workplace information literacy should be part of job descriptions.
Problems related to the introduction of workplace information literacy training	Various problems were noted including the time factor, resistance to the introduction of a new concept, university buy-in and staff attitude, management commitment, people's egos and physical resources to embark upon such a programme.
Role of information in developing expertise in fields of speciality	This will differ according to field of speciality and position in the institution and tasks. What was mentioned was that information is an enabler as it helps with getting embedded knowledge. It assists staff in knowing about new developments, which include expertise in labour practice among others, and constant development in getting to know about student lives, improving administrative leadership and improving teaching and learning as well.
Importance of training addressing workplace information literacy	Interview participants mentioned that training would assist in people getting to know their field of specialisation at a deeper level, improving the kind of service they offer, to become effective and efficient in the workplace, as well as build their confidence.
Workplace information literacy as a pre- requisite	As reflected in Table 4.27, 51.7% of questionnaire respondents were of the opinion that there should be workplace information literacy testing as part of the recruitment process. There were, however, different opinions on this issue. If it becomes a prerequisite a lot of potential employees might end

130

	up disadvantaged and the poorest of the poor will thus be affected. As alternative, workplace information literacy could form part of the induction programme for new staff.
Skills to be addressed in workplace information literacy training	Various skills were noted, including basic software installation, basic downloading of different software training, and the use of computers, faxes and telephones that assists people in carrying out their daily work. Communication skills, search skills, how to access information and the latest technology and databases, different search engines, how to formulate a search strategy, referencing, identifying information in a focused way and the ability to analyse information among others were also noted.
Recommendations on responsibilities for workplace information literacy training	Various options were noted such as the library and information services in conjunction with human resources taking responsibility with involvement from other departments such as IT, humanities, faculty, e-learning and institutional planning amongst others. This will need to be an institutional decision in consultation with all stakeholders including faculties, organisational development and the university management itself.
Awareness initiatives required for the implementation of workplace information literacy training	Interview participants mentioned notice boards, word of mouth, emails including special communication from the vice chancellor. Campaigning, invitation of experts in the workplace information literacy area, workshops, seminars, advertising in the university's advertising platforms, and the involvement of faculty boards.
Monitoring of the application of workplace information literacy training	Interview participants mentioned the use of specialised software; workplace information literacy being part of staff KPA's (key performance areas)

	and that managers and supervisors should monitor the application of workplace information literacy in the actual performance of staff. Monitoring processes should be reported in meetings and a special office dealing with workplace information literacy need to be established. Suggestion boxes and keeping of training attendance registers have also been mentioned as potential monitoring tools. Use of questionnaires and surveys could also be used as workplace information literacy training monitoring tools.
Role of the library in promoting workplace information literacy	From the questionnaires, 57.9% of respondents (reflected in Table 4.29) were of the opinion that workplace information literacy training should be the responsibility of the library. Interview participants mentioned that the library and information services should play a crucial role since the relevant expertise is based there. The library should train new people as they join the organisation, it should provide back-up when people need help, invite divisions and offer training.
Roles of specific committees	Interview participants representing committees noted the need for collaboration between the library and committees. Committees can exert influence in advisory capacity in decision making forums of the university and in ensuring that workplace information literacy initiatives become a reality for the university. Further initiatives can be done by advising faculties, making sure that feedback reaches faculties and that information literacy becomes part of the agendas of institutional meetings.

4.5. RELIABILITY AND VALIDITY OF THE FINDINGS

The reliability and validity of the findings need to be monitored (Rubin & Babbie, 2011:299). Testing of the instruments was not conducted due to the fact that consent had to be granted by the University of Pretoria's EBIT research ethics committee first before any form of data collection could be conducted. In the subject literature it is stipulated that the participants must be individuals with no ties to the researcher and that data collection instruments such as questionnaires should not be completed more than once by any participant (Rubin & Babbie, 2011:299). For this study ethical considerations as explained in Chapter 3 section 3.5.2 were observed.There was no special relationship between the researcher and participants. Each respondent participated out of free will, and not completed more than one questionnaire.

4.6. CONCLUSION

Chapter 4 focused on the research approach for this study, namely a mixed method approach, the presentation of the data collected, analysis and interpretation of the findings. From the findings, it is clear that both questionnaire respondents and interview participants support workplace information literacy and would like to see it as part of the university strategic plan. Various suggestions were made on how it should be designed and implemented. Suggestions regarding training programmes, assessment, monitoring and evaluations were also given.

Challenges that could inhibit the implementation of workplace information literacy were mentioned and intervention strategies to allay the identified challenges were also stated. Reliability and validity of the instruments, collected data and findings have also been addressed in this chapter.

Chapter 5 will present a proposal for a framework for workplace information literacy based on the findings reported in Chapter 4, as well as the literature review presented in Chapter 2.

CHAPTER 5

FRAMEWORK TO IMPLEMENT WORKPLACE INFORMATION LITERACY TRAINING

5.1. INTRODUCTION

Chapter 4 focused on data analysis and interpretation. This chapter builds on preceding chapters and focuses on the suggestions for a framework for workplace information literacy. It especially considers the findings and insights gained from the literature review in Chapter 2 as well as empirical findings from Chapter 4. Simpson (2003) defines a framework as "*a group of components that work interactively with request from other components or objects to generate a consistent output.*" Weiner (2011:298) explains that a framework organises elements of the same phenomena in such a way that variables interact and combine with one another. A systematic view of trends as they emerged in the literature and findings from analysis of both the interviews and questionnaires as reflected in Table 4.30, section 4.4 play a significant role in the framework proposed for workplace information literacy at Central University of Technology, Free State. This chapter presents workplace information literacy framework for the CUT.

5.2. CONTEXTUALISING THE WORKPLACE INFORMATION LITERACY FRAMEWORK

Paving a way for workplace information literacy to manifest results, the outcomes thereof need to be clearly stated. Sections 4.4.1 and 4.4.2 noted some outcomes of workplace information literacy; these include:

- Building confidence in staff and staff empowerment.
- Improving service delivery.
- Saving the institution money.
- Enabling staff to learn about new developments in their areas of expertise.
- Improving decision making.
- Improving leadership.
- Improving the quality of teaching and learning.
- Sharpening research skills.
- Improving and increasing institutional research output.

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Before arguing the case for a workplace information literacy framework, it is important to first briefly highlight the key issues forming the foundation as it emerged from the findings in the literature in Chapter 2 and data analysis results in Chapter 4 of this study.

Key issues noted as foundations for the framework include:

- Establishing buy-in and support from institutional stakeholders.
- Needs analysis and situation analysis to determine the needs of the university, groups and individual staff members.
- Developing a strategic plan including:
  - Alignment of workplace information literacy with the university's corporate strategy including the vision and mission statements of the institution, i.e. the institutional strategic processes such as formulation of an information literacy policy.
  - Design and development of an information literacy programme.
  - Securing of the programme administration.
  - Raising awareness for workplace information literacy and marketing of the programme.
  - On-going programme monitoring and evaluation.

These key issues are dealt with in more detail in Table 5.1, before further elaboration in sections to follow.

Table 5.1: Key issues of the proposed framework aligned with insights from the literature review and empirical data

Key issues	Descriptions	Literature and empirical support
Establishing institutional buy-in and support		
1. Establishing institutional buy-in and support	**University executive management buy-in:** With regard to institutional management, the need for buy-in has been noted in the feedback from the questionnaire and interviews as summarised in section 4.3.1.9 and section 4.4.3 in Table 4.30. It is also discussed in section 5.3.1. Section 2.2 offers some advice on the buy-in as	*Literature:* Webber and Johnston in Walton and Pope (2006). *Empirical*: noted in sections 4.3.1.9 and 4.4.3.

135

	expressed from a literature point of view, when referring to best practice efforts that is presented in section 2.6.1.	
	Academic staff buy-in: Secker (2011:13) recommends the need to introduce an information literacy forum of academics that should address issues and concerns around the subject. Further discussion is offered in section 5.3.1.2.	*Literature:* Secker (2011:13), Madu and Dike (2012:179-180). *Empirical*: noted in sections 4.2.4 and 4.3.1.4.
	Support services staff buy-in: With regard to the need to gain buy-in from support services staff, support is garnered from Hepworth and Smith (2008:212) where the information literacy competencies of administrative staff from Leeds and Loughborough universities were studied. A similar study was conducted by Harris *et al.* (2004:2). More discussion in this regard is reflected in section 5.3.1.3.	*Literature*: Conroy (2006:3), Harries *et al.* (2004:2), Hepworth and Smith (2008:212), Webber and Johnston in Walton and Pope (2006) and Secker (2011:13). *Empirical:* noted in section 4.2.2 and Table 4.28.
2. Needs analysis/ situation analysis		
2.1. Institutional, individual and situational needs analysis	Needs analysis addresses institutional needs and individual needs. Situational analysis includes analysis of available infrastructure, human resources etc. Situation analysis also touches on aspects of administration as reflected in section 5.3.3.3. More discussion on this is presented in section 5.3.2.	*Literature*: Macoustra (2003), Clark in Xenitidou and Gilbert (2009:55) and Gupta, Sleezer and Russ-Eft (2007:1). *Empirical:* presented in section 4.2.2 and Table 4.30 section 4.4.1.
3. Strategic plan including:		

136

3.1. Aligning workplace information literacy with the institutional corporate strategy including the vision and mission	Alignment of workplace information literacy with the vision and mission as statements of the university is noted. For Central University of Technology, Free State it includes Vision 2020. Further discussion follows in section 5.3.3.	*Literature*: Grassian and Kaplowitz (2001:266). *Empirical*: noted in section 4.3.1.7 and Table 4.30 section 4.4.3.
	Development of a workplace information literacy policy, or alternatively alignment with existing policies to accommodate workplace information literacy. Further discussion is offered in section 5.3.3.1.	*Literature*: Auckland University (2006), Consortium of National and University Libraries, (2005), Thompson and Cody (2003), Weiner (2011:298) and University of Tasmania (2010). *Empirical*: Not noted in the empirical evidence.
	Inclusion of workplace information literacy programmes into the staff induction programme as well as with job descriptions and deciding if it should be compulsory or optional. Further descriptions are provided in sections 5.3.3 and 5.3.3.2.	*Literature:* Macoustra (2003:8-9) and ANU Human Resource Department (2004). *Empirical:* noted in section 4.3.1.6.
3.2. Design and development of a workplace information literacy programme	**Programme design:** A decision needs to be taken with regard to programme objectives and outcomes, content, use of technology, training formats, for example workshops, training intervals, etc. Further discussion is offered in section 5.3.3.2 (a).	*Literature:* Donnelly and Cradock (2002). *Empirical*: presented in section 4.2.4.10 of this study.
	Programme development: The programme needs to be developed according to decisions taken in programme design. More discussion on this is provided in section 5.3.3.2.	*Literature*: Conroy (2006:3-6) and Macoustra (2003:8-9). *Empirical*: described in section 4.2.3.3.

137

	Assessment: Decisions must be taken on which assessment methods to use, whether credit bearing, etc. Examples of evaluation methods are offered in section 2.6.3.2. Further details are presented in section 5.3.3.2 (b).	*Literature:* Allan (2007:94), Fourie & Van Niekerk (1999:334), Ivanitskaya, O'Boyle and Casey (2006), Oakleaf and Kaske (2009: 273-286) and Shorten, Wallace & Crookes (2001:87-88). *Empirical:* presented in Tables 4.25 and Table 4.30 section 4.4.3.
3.3. Securing administration of the programme	Administration takes into consideration the planning, financial support, availability of physical facilities, human resources, etc. Further discussions on administration are covered in section 5.3.3.3.	*Literature:* Allan (2007:201-207), Cheuk (2008:138), Grassian and Kaplowitz (2001:151) and ANU Human Resource Department (2005:3). *Empirical:* presented in section 4.3.1.9.
3.4. Raising awareness and marketing	The need for raising awareness, the need and importance of workplace information literacy including using the latest technologies for marketing have been noted. More detail is offered in section 5.3.3.4.	*Lieature:* Donnelly and Cradock (2002) and (Sayers, 2006:17). *Empirical:* noted in section 4.4.3 of Table 4.30.
3.5. On-going programme monitoring and evaluation	Tools to be utilised to monitor the programme include, annual reviews, short questionnaires, meeting reports etc. Further discussion in this regard is offered in section 5.3.3.5.	*Literature:* Allan (2007:94) and Grassian and Kakplowitz (2001:167). *Empirical*: noted in section 4.3.1.11.

Table 5.1: Key issues of the proposed framework aligned with insights from the literature review and empirical data is an extremely useful summary of the research. It adds great value to the dissertation detailing the contributions from the literature and from the empirical evidence presented in the study. It then leads into the presentation of the framework. Figure 5.1 presents the framework.

Figure 5.1: Central University of Technology, Free State workplace information literacy framework

The detail of the framework proposed in Figure 5.1 is offered in the sections that follow.

5.3. DETAIL ON THE FRAMEWORK COMPONENTS

The following sub-sections deal with the details of a workplace information literacy framework. The components are presented in the order, in which it is suggested that they are considered. The first aspect of the framework to be addressed is institutional buy-in.

5.3.1. Institutional buy-in

For a workplace information literacy programme to attain organisational success, it must be accepted and gain support institution wide. Somerville, Howard and Marijamdotter (2009:120) mentioned that a participatory design philosophy is the way to go as it extends relationships among people and ideas, where varying agendas are negotiated and different understandings are incorporated into the organisational structures. Institutional buy-in and commitment need to be at managerial level including top management, faculty and departmental level. Apart from top management making decisions on the nature and scope, workplace information literacy requires the support of deans and Heads of Departments (HODs). This also applies to support and service departments.

139

Buy-in can be secured by means of participatory design, promotion of shared responsibility, collaboration in co-design, involvement in presentation, sharing responsibilities and the branding of the workplace information literacy programme (Schmidt, Lyons & Rutherford, 2004:6-7; Cheuk, 2008:120).

Figure 5.2 presents issues on institutional buy-in as a framework component.
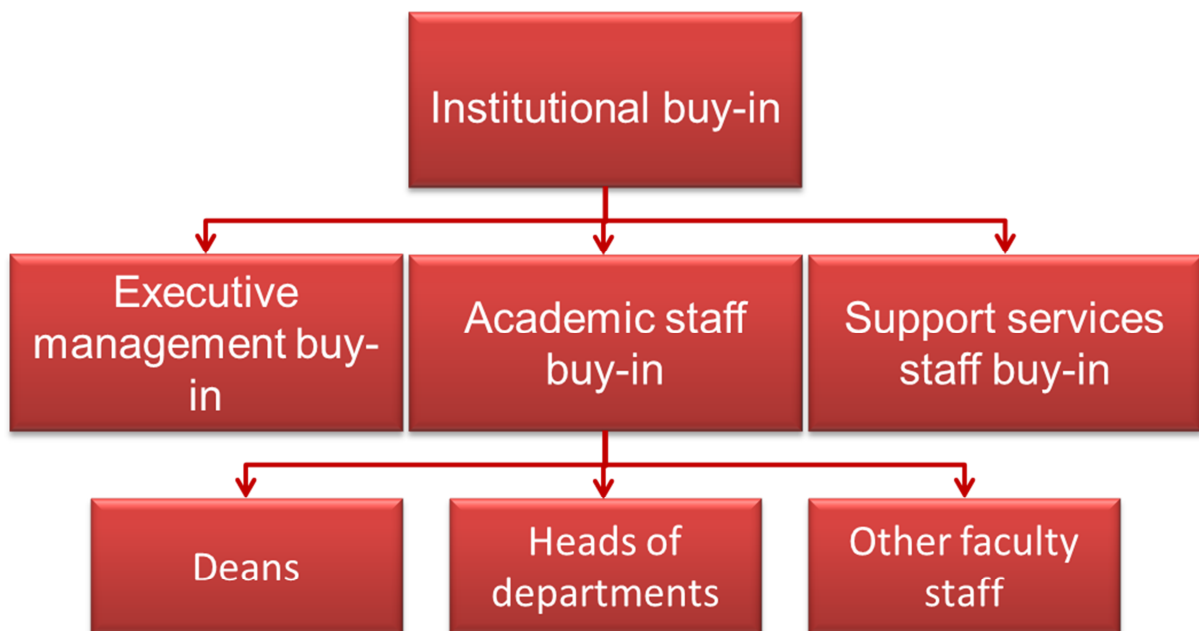
Figure 5.2: Institutional buy-in

Each aspect of the institutional buy-in is discussed in the sections that follow.

5.3.1.1. Executive management buy-in

It has been recommended in Chapter 4 section 4.3.1.8 that for workplace information literacy to be effective, buy-in by the institutional management is important. It must further be noted that committees in Chapter 4, section 4.3.1.13 stated that the role they could play is to advise the university management, give feedback to faculties and also to make sure that workplace information literacy becomes part of agendas in meetings. According to Cheuk (2008:137-139), Colin (2007:368-371), Goad (2002:2) and Schmidt *et al*. (2004:9) the following can be adopted as best practice strategies to obtain executive management buy-in into workplace information literacy:

- Placing workplace information literacy as priority on top management's agenda.

140

- Having meetings and discussions with senior management. Cheuk (2008:140) identified an angle where project leaders help senior leaders to see the value and benefits that come with workplace information literacy for organisations through meetings and discussions.
- Empowering managers to identify opportunities to grow business through the information lens. There should be rewards for competency and initiation of projects that require evidence-based practice (Somerville *et al.*, 2009:123; Colin, 2007:37; Schmidt *et al.*, 2004:7).
- Ensuring budget allocation for the training programme.
- Developing a policy.

Once these have been taken care of, related aspects such as ensuring a supportive working environment, dealing with the pressures and dynamics from the external environment as well as new developments and technologies, assessing whether the programme outcomes have been met, and deciding on what worked well and what need to be improved should fall into place (Allan, 2007:207-208).

5.3.1.2. Academic staff buy-in

Buy-in from the academic staff can be encouraged by focusing on the potential value workplace information literacy may have for them such as learning about new developments and preparing students according to changes in the job market. It can support them in publishing books and articles, improving their citation profiles and in securing grants for their research.

5.3.1.3. Support services staff buy-in

As noted in the empirical evidence some supportive staff are making extensive use of information. As for support services staff, gaining their buy-in should be based on the value workplace information literacy holds for them. Embedded benefits that can be promoted by workplace information literacy include amongst others: improved services and development of expertise in one's area of specialty as mentioned earlier in section 5.1 of this chapter.

Once issues of buy-in have been addressed, information literacy should be aligned with the institutional corporate strategy. Needs and situational analysis are, however, first required.

5.3.2. Needs analysis and situation analysis

In order for the institution to put in place a good foundation for workplace information literacy programme implementation, firstly needs analysis and situation analysis are necessary (Allan, 2006:72-73; Grassian & Kaplowitz, 2001:134; Tergaden, Dennis & Wixom, 2013:4-4, 50-51). Suggestions for action plans can emerge from the results of these analyses. Needs analysis and situation analysis can also assist in determining how the roll out intervention strategies should proceed. Each of the analyses will be discussed in the sections that follow.

5.3.2.1. Needs analysis

Needs analysis is essential in any planning of instruction. According to Gupta *et al.*, (2007:1) needs analysis is regarded as "*a process of examining and framing people-related problems and performance improvement opportunities*". It has emerged in Chapter 4, section 4.4.1 that the majority of respondents need a variety of information on a daily basis and that the information is closely related to their tasks. Examples of needs analysis are covered in Chapter 2 section 2.4 noting the work of Conroy (2006:3-6), Donnelly and Craddock (2002) and Macoustra (2003:8-9). Grassian and Kaplowitz (2001:34) describe it as 'what-how-who': what is being taught, how is the content presented and who is being taught? Needs analysis gives direction and focus to the investment an organisation intends to make on the workforce, and that can save the organisation time and money (Grassian & Kaplowitz, 2001:134-135).

The study has demonstrated that needs analysis needs to be conducted on two levels:

- Institutional needs analysis.
- Individual needs analysis.

The details of what each level needs to consider are presented in Figure 5.3, as drawn from the literature review in Chapter 2 and empirical evidence presented in Chapter 4. The intention is not to provide exhaustive lists of issues to consider; merely an indication of issues.

142

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                                                    ┌─────────────────────────────────┐
                                                    │ Institutional needs and          │
                                                    │ expectations                      │
                                                    │ * Meeting institutional vision & │
                                                    │   mission                         │
                                                    │ * Maintaining a competitive edge │
                                                    │ * Taking informed decisions       │
                                                    │ * Increasing research quality &  │
                                                    │   quantity                        │
                                                    │ * Improving the quality of        │
                                                    │   education                       │
                                                    └─────────────────────────────────┘
                          ┌──────────────────┐      ┌─────────────────────────────────┐
                          │ Institutional    │      │ Staff levels to receive          │
                          │ needs analysis   │──────│ workplace information literacy    │
                          │                  │      │ training                          │
                          └──────────────────┘      └─────────────────────────────────┘
                                                    ┌─────────────────────────────────┐
    ┌──────────────┐                                │ Positioning of workplace          │
    │ Needs        │                                │ information literacy & inclusion  │
    │ analysis     │                                │ in institutional policy           │
    └──────────────┘                                └─────────────────────────────────┘
                                                    ┌─────────────────────────────────┐
                                                    │ Demographic factors influencing  │
                                                    │ the need for workplace            │
                                                    │ information literacy              │
                                                    │ * Academic qualifications         │
                                                    │ * Current position experience     │
                                                    │ * Level of job designation        │
                                                    │ * Section and department          │
                                                    └─────────────────────────────────┘
                          ┌──────────────────┐      ┌─────────────────────────────────┐
                          │ Individual needs │      │ Individual training needs        │
                          │ analysis         │──────│ analysis                          │
                          └──────────────────┘      │ * Proficiency of information     │
                                                    │   skills                          │
                                                    │ * Use of information sources      │
                                                    │ * Computer literacy skills        │
                                                    │ * Communication skills            │
                                                    │ * Personal information management │
                                                    │   etc.                            │
                                                    └─────────────────────────────────┘
                                                    ┌─────────────────────────────────┐
                                                    │ Training preferences              │
                                                    │ * Training format                 │
                                                    │ * Training intervals              │
                                                    │ * Training mediums                │
                                                    │ * Duration of training            │
                                                    └─────────────────────────────────┘
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Figure 5.3: Needs analysis for workplace information literacy

(a). Institutional needs analysis for workplace information literacy

The institutional needs must be determined in terms of expectations that must be met, as well as the decisions to take in terms of which levels of staff to include and how workplace information literacy should be positioned. From the empirical study various staff levels were mentioned including: junior level, middle management and senior management. Some participants pointed out the need to train all staff. Based on the institutional needs analysis it should be decided if all levels or only some should be included in a training programme. To ensure that a workplace information literacy programme supports the university in achieving the institutional vision and mission, the needs for the following should be considered:

143

maintaining a competitive advantage, making informed decisions, increasing research output, improving the quality of education and positioning workplace information literacy in terms of the set expectations as presented in Figure 5.3.

(b). Individual needs analysis

Key issues relevant to the individual needs analysis include demographic factors, individual training needs and training preferences. Selected aspects of needs on an individual level are reflected in Figure 5.3. For demographic factors the level of education (i.e. qualifications), staff level and position, years of experience, age, section and department in which staff are working need to be considered. The needs analysis reported in Chapter 4 noted needs such as the ability to locate, analyse and assess the value of information, apply the information, and to effectively and efficiently complete an information task. It also noted the need for communication skills, and skills in personal information management, how to "extract" the right information and how to access restricted information. Training needs such as familiarity with search functions; referencing techniques, computer literacy skills, social networking tools and reference management software as indicated in section 4.4.2 of Chapter 4 were also mentioned.

For individual training to be considered, Chapter 4 noted issues such as training format, training mediums, durations and intervals.

Taking institutional needs and individual needs into consideration, situation analysis is essential in order to determine whether the institution is in a position to roll out the programme, and the next section addresses situation analysis further.

5.3.2.2. Situation analysis

Situation analysis refers to a process whereby aspects such as the status, conditions, trends and state of affairs affecting people, influenced by internal and external factors, in a given location's context are examined (Roy, 2001). It assists with estimations of planned actions, taking into consideration the state of affairs and creating a mental presentation thereof (Jousselme, Maupin & Bosse, 2003; Roy, 2001). In the case of this study, situation analysis should assist with determining among other things, the availability of infrastructure, human resources to design and develop a programme, to train, and administer the programme, as well as the availability of budgets to meet the needs of the programme, and availability of

144

library resources to support such a programme. Further details are presented in section 5.3.3.3 of this Chapter. Figure 5.4 presents the issues to consider in situational analysis.
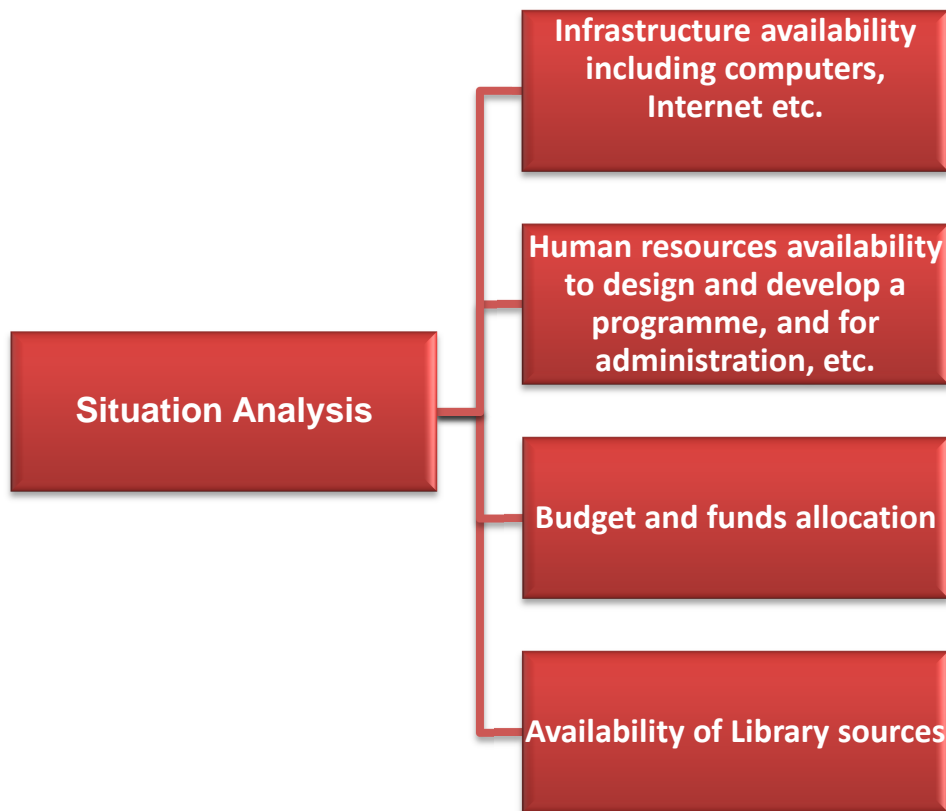
Figure 5.4: Situation analysis considerations

Once the needs and situation analysis have been conducted, the next step is to develop a strategic plan and the section that follows addresses that.

5.3.3. Strategic plan

A strategic plan for workplace information literacy includes five components as noted in the framework presented in Figure 5.1. The components are: alignment with the university's corporate strategy and formulation of a workplace information literacy policy, programme design and development, programme administration, awareness raising and marketing, and on-going monitoring and evaluation as mentioned earlier in section 5.2. The sub-sections that follow address these.

145

5.3.3.1. Alignment of workplace information literacy with the university's corporate strategy and formulation of a workplace information literacy policy

Recommendations in Chapter 4 section 4.4.3 indicate that as part of the strategic corporate plan, workplace information literacy should be supportive to the vision, mission and values of an institution as well as any long term planning for example Vision 2020 at the Central University of Technology, Free State. If workplace information literacy is part of the vision and mission, it becomes part of the processes of the university.

Alignment with the corporate processes can include: formulation of a workplace information literacy policy. If provision in existing university policies cannot be identified, then a good step would be to first check if there are existing policies on workplace information literacy at other institutions (preferably academic) that can be considered. Support for workplace information literacy policy as part of the corporate strategic plan and processes was also noted in the subject literature (Thompson & Cody, 2003; Consortium of National & University Libraries, 2005; University of Auckland, 2006; Allan 2007:86; University of Tasmania, 2010; Weiner, 2011:298). The policy would determine if it should be compulsory or optional, whether it is necessary for all the staff levels to be addressed, whether it will be part of job descriptions, whether it should be included in the university calendar and whether it has to form part of an induction programme for new staff members.

5.3.3.2. Programme design and development

From the feedback in Chapter 4 and the literature review in Chapter 2 various issues regarding the design and development of a workplace information literacy programme can be noted.

The first step would be to consider best practices as reported in the literature (Grassian & Kaplowitz, 2001:162; Gupta, 2002; the ANU Human Resource Department, 2005:1-9; Somerville, Huston & Mirijamdotter, 2005; Allan 2007: 86). Allan (2007:86), for example, developed a useful flow chart of programme design which can be considered for the identification of content modules and units of content. Programme design and development would be influenced by findings from the needs and situation analysis. This includes decisions on the content, decisions on presentation (for example, medium of delivery, format, timing and intervals), assessment and training evaluation. These will be discussed more in the sections that follow. Figure 5.5 presents issues that the programme design and development should address.

146
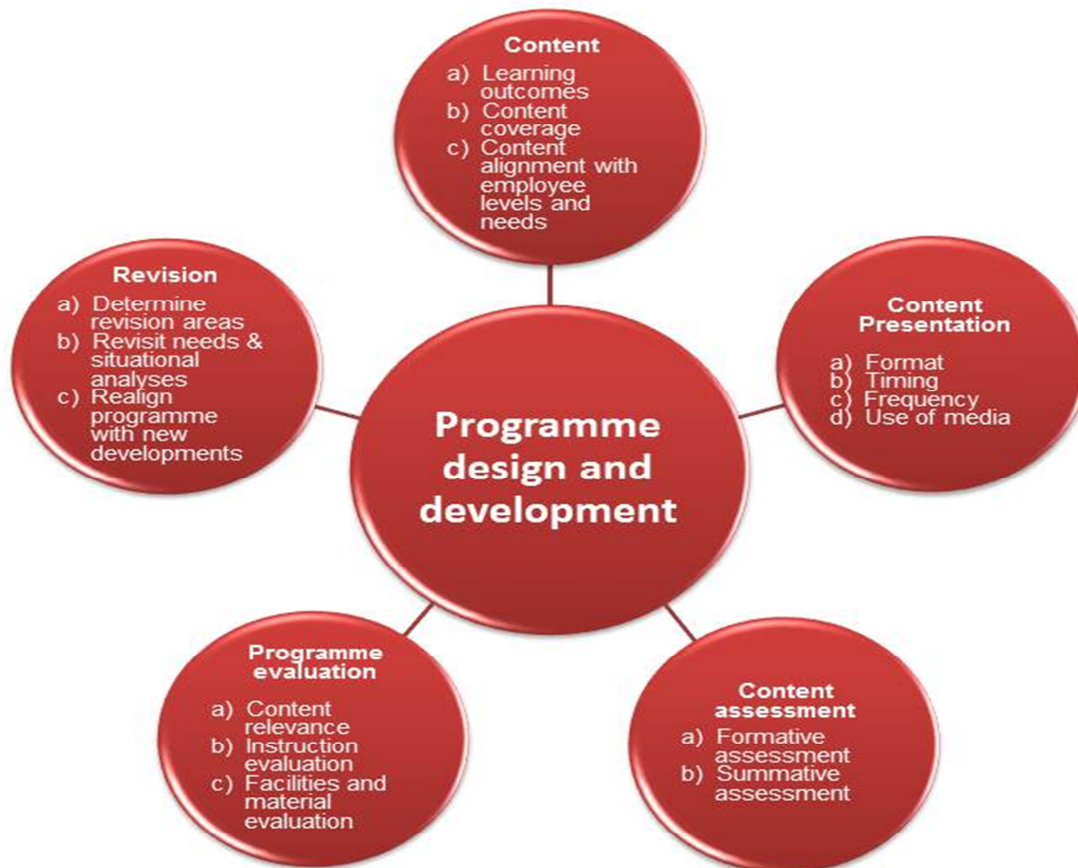
Figure 5.5: Progamme design and development decisions

The discussion that follows addresses each aspect reflected in Figure 5.5 and how each aspect builds into the development of the programme, noting the different levels of employees: In section 4.3.1.4 it was noted: "…*CUT is a very hierarchical institution, you have people at the top, there are highly literate people with Masters and Doctoral degrees, professors and so on uh who possess vast amounts of information about the institution and then at the bottom of the institutional hierarchy we have people who can even hardly spell their names.*"

(a). Content

The points given below could serve as guidelines for content decisions depending on the levels of employees as well as their qualifications. One committee member in section 4.3.1.13 of Chapter 4 even said, "*… workplace information literacy is intended to empower our ordinary people*". Content could be designed with the following considerations: to allow for minimum levels of information literacy (as reflected in section 4.2.4.10) issues such as telephone usage, fax machine usage and basic computer literacy can be addressed. In the South African context this might be aligned with ABET (Adult Basic Education and Training). Such issues can be aligned with the need to *"… build confidence in workers"* (section 4.3.1.3) at lower levels of education. The need for confidence and self-efficacy is also stressed in the study by Kilic (2010:3); the need for computer literacy came through very strongly in the empirical feedback as well as the literature (Kilic, 2010). Other issues of importance on content include communication (Goad, 2002:44), finding information (information needs awareness, identifying information needed in a focused manner, as well as search skills), how to access different sources of information, how to conduct search engine searches and how to retrieve information from databases.

For staff levels with bachelor's degrees and above, the types of information and information sources to address in the training (section 4.2.2.4 and section 4.3.1.5) could include: finding articles and books including peer reviewed and accredited publications, databases that the library subscribes to, conference papers, information of a qualitative and quantitative nature, using the local intranet for policies and administrative documents, legislation, acts that govern different industries relevant to tertiary education, job descriptions, and known websites.

From the findings in Chapter 4, it became evident that once information has been identified, accessed and retrieved, the presentation of information into a final product becomes important (section 4.2.2.5 and section 4.3.1.5). Skills required in this regard include: interpreting information, synthesising information, evaluating information, applying the information for presentation, packaging and repackaging the information, communicating the information, storing the information and ultimately knowledge management (i.e. retaining knowledge for the institution once an employee leaves).

148

(b). Content assessment

Various levels of assessment are important, including assessment of the participants in information literacy programmes**.** Grassian and Kaplowitz (2001:274), Oakleaf and Kaske (2009:278) and Dunaway and Orblych (2010) discuss formative and summative assessment methods that could be employed when assessing skills acquisition. Formative assessment provides immediate feedback since it is carried out during the training instruction and trainees can receive immediate help. Summative assessment takes place at the end of the training instruction, thus as the final assessment. According to Fourie and Van Niekerk (1999:334), Ivanitskaya *et al*., (2006) and Shorten *et al*., (2001:87-88) assessment methods can include: interactive online assessment, multiple choice questions, problem based exercises, declarative knowledge (for example assessing knowledge on plagiarism), questions related to research terminology and portfolio assessment (Fourie & Van Niekerk, 1999:334).

Besides content assessment, training evaluation is necessary to improve the quality of training that is being offered. The next section deals with recommendations for training forms as articulated in the research findings in Chapter 4, section 4.2.3.3 and section 4.3.1.6.

(c). Content presentation

Information literacy training can take different formats (Donnelly & Craddock, 2002; Macoustra, 2003:8-9). Various recommendations were noted in the empirical feedback (sections 4.2.3.3, 4.2.3.4 and section 4.3.1.6). These include having a workplace information literacy programme as part of an induction programme for new staff, and a refresher course on "*latest markets*", reinforcement and repetition. Formats for training include general workshops, individual training and tailored group sessions for departments. Training mediums recommended include: face-to-face instruction, mobile delivery of training material, video conferences, webinars, and self-paced learning through an electronic management system.

The size of training groups and the frequency of training also need to be decided. Suggestions from the empirical component discussed in Chapter 4 (Section 4.2.3.5 and section 4.3.1.3) include small groups, and presentations to be offered on a quarterly basis.

(d). Programme evaluation

Various suggestions for the evaluation of training programmes are reported in the subject literature **(**Allan, 2007:94; Grassian & Kaplowitz, 2001; Gupta, 2002; Shonrock, 1996:4). These authors provide guidelines on the methods that can be used, instruments to use for training evaluation, and content issues to cover.

A training evaluation form or questionnaire could be made available for trainees to rate the training. To put this briefly, the literature, especially the work of Allan (2007:94), Grassian and Kaplowitz (2001: 28, 81, 87, 101), Gupta (2002) and Shonrock (1996:4-5) offer the following advice for the training evaluation form: confidentiality guaranteed and guidelines on how the questionnaires should be filled in. The form should be divided into sections comprising of, trainees' demographics, physical facilities evaluation, presenter evaluation, material evaluation, content relevance, etc.

(e). Revision

It is important that after the programme has been presented and evaluated, programme revision be conducted. The revision will assist with determining areas that need improvements and any other related need and situation that might have arisen during the programme presentation and evaluation, as well as changes in the institution. Revision will enable the programme to be realigned with new developments.

5.3.3.3. Workplace information literacy programme administration

Administration of any programme including a workplace information literacy programme is very important. Figure 5.6 notes some issues important regarding programme administration.

Figure 5.6: Workplace information literacy programme administration

Literature support, particularly the literature on employee training and development such as Erasmus, Loedolff, Mda and Nel (2012:106-117) and Daniels (2003), note the importance of administration where issues such as the following are addressed:

- Keeping record of completed training i.e. how many people have acquired the desired competencies.
- Training costs; budget and expenses, identification of suitable personnel, etc.

Erasmus *et al.* (2012:44-45) further note that programme administration is influenced by the findings from the needs analysis and situation analysis. Issues that involve the start and end date, time allocated for the programme, cost benefits, etc. are equally important aspects of programme administration. Good administration will also make it possible for administrators to see how many people are using the programme (Allan, 2007:201-207; ANU Human Resource Department, 2005:3). Under administration, it is important that roles and responsibilities for workplace information literacy programmes are assigned. Findings from the research results in Chapter 4 under 4.3.1.5 revealed that there should be an office or section that takes the sole responsibility of managing the workplace information literacy programme. Referring from best practices in the literature, Cheuk (2008:138) mentions that at the Environmental Resources Management Company, administration of workplace

151

information literacy was placed under a newly established global knowledge sharing team. The team consisted of four information professionals. It has been recommended in Chapter 4 section 4.2.4.9, section 4.3.1.8 and section 4.3.1.12 that the library and information services with the assistance of units concerning human resources (employee development section), faculties (deans), management, and units involved with e-learning and institutional planning take responsibility for workplace information literacy programmes.

It is up to individual institutions to decide on the best suitable way of assigning responsibility for a workplace information literacy programme. Besides assigning responsibilities, other aspects include marketing and awareness initiatives are addressed in the section that follows.

5.3.3.4. Institutional awareness and marketing of workplace information literacy

Findings regarding institutional awareness and marketing of workplace information literacy have revealed that awareness and marketing initiatives are necessary as indicated in Chapter 4 sections 4.3.1.7 and section 4.3.1.10. Suggestions offered included among others:

- Vice-Chancellor communiqué to staff, promoting workplace information literacy.
- Marketing the programme to staff during faculty board meetings.
- Organising campaigns.
- Word of mouth.
- Notices and e-mails.
- Marketing in meetings and workshops.
- Invitation of experts in this area for lectures.

The literature noted that an accredited training certificate would add to the interest in information literacy training (Allan, 2007:219; ANU Human Resource Department, 2005:3). From the literature, Sayers (2006:17) suggested the following as promotion and marketing tools; personal communications, travelling exhibitions and displays, billboards, cartoons, pamphlets, posters, newspapers, magazines, brochures etc.

5.3.3.5. On-going programme monitoring and evaluation

Chapter 4 section 4.3.1.11 recommended that there should be monitoring and evaluation of the workplace information literacy programme. Some monitoring aspects on workplace

152

information literacy have already been addressed as part of job descriptions and they include key performance areas (KPAs), performance reviews and progress monitoring by supervisors.

Section 4.3.1.11 highlights important issues that should form part of monitoring and evaluation and they include:

- Supervisors to come up with projects and assess how the projects are dealt with and completed when information literacy tools are utilised.
- Reports on how many people have attended.
- Annual reviews and audits of training offered and attended.
- Training attendance register.
- Availing short questionnaires/surveys after the training to evaluate the programme.

These points are supported by Allan (2007:94). Grassian and Kaplowitz (2001:267) recommended that a cycle of evaluations, assessment and monitoring should be conducted regularly.

5.4. CONCLUSION

This chapter presented a framework for workplace information literacy and the outcomes thereof. Important aspects considered essential for the components of a framework, including university community acceptance and buy-in, university management strategic plan and involvement, needs and situation analysis, workplace information literacy as part of the university's strategic plan were also presented. Policy development issues were mentioned. The components of a programme with content scope, content presentation and programme evaluation were presented. Programme administration and ongoing programme monitoring were highlighted as well.

CHAPTER 6

SUMMARY OF FINDINGS, RECOMMENDATIONS AND SUGGESTIONS FOR FURTHER RESEARCH

6.1. INTRODUCTION

The purpose of this chapter is to give a synopsis of the study, a summary of key findings, as well as a recap on the presented framework for workplace information literacy. The unfolding of the study as it evolved from Chapter 1 to Chapter 5 is briefly recapped in this chapter to highlight the factors that contributed to the design of a workplace information literacy framework, its value for institutions and its broader application potential for other workplaces. Recommendations and suggestions for praxis and further research are included.

6.2. PURPOSE AND AIM OF THE STUDY REVISITED

The purpose of this study was to investigate the design of a workplace information literacy framework for an academic workforce. The purpose of such a framework was to give guidance and act as a point of reference for the institution of the case study, as well as other institutions and organisations that intend to develop workplace information literacy programmes.

To do this, practices reported in the literature were consulted. Workplace information literacy in the context of higher education, public and private sectors were outlined. Interventions by the Australian National University and Griffith University as mentioned in Chapter 2 section 2.6.1 were also outlined. The public sector's efforts regarding information literacy skills of public service workers at the Kaohsiung city in Taiwan (section 2.6.2.1) as well as the information literacy of Kuwait police officers (section 2.6.2.2) were also mentioned. With regard to the private sector's efforts, the Blake Dawson Waldron law firm (section 2.6.3.1) and the Unilever R&D (section 2.6.3.2) were presented. Data collected for this study was aligned with findings, and especially with regard to challenges noted in the literature.

Based on the literature and the data collected through interviews and questionnaires the following were identified as important: managerial and institutional buy-in, management embedding workplace information literacy in line with the needs analysis, situation analysis, alignment with the university's corporate strategic plan including fitting workplace information

154

literacy into institutional policies, programme design and development, programme administration and on-going programme monitoring and evaluation.

A cornerstone for a framework for workplace information literacy at an academic institution in higher education was presented as a summary of key findings in section 4.4 of Chapter 4. As noted, the combination of the literature findings, even though some cases were not related to higher education, together with the empirical findings as presented in Table 5.1 in Chapter 5 contributed significantly in unfolding components considered important for a workplace information literacy framework design.

6.3 PROBLEM STATEMENT REVISITED

In the light of the growing interest and urgency to address workplace information literacy, motivation for this study was supported by reference to the South African government gazetted Act no 97 of 1998 as presented in Chapter 1 section 1.1 of this study, focusing on skills shortage in the country. The purpose of undertaking the research was therefore to contribute to the call of the government with regard to skills development and as such develop a workplace information literacy framework using CUT as a case study. The research question guiding the study as presented in Chapter 1 section 1.3 of this study was: "*What should a framework to promote workplace information literacy in academic settings entail?*"

6.3.1. Sub-problems revisited

Sub-problems did emerge from the problem statement as stated in Chapter 1. The discussion below revisits each sub-problem and also provides guidelines as to how each sub-problem was addressed. The sub-problems included the following:

- What is information literacy?
  - ✓ Definitions and what information literacy is have been addressed in the literature consulted for this research. The accepted definition of information literacy was, "… *knowing when and why you need information, where to find it and how to evaluate, use and communicate it in an ethical manner*" (CILIP, 2008). This definition guided the analysis of the concept of workplace information literacy. This was dealt with in Chapter 1 section 1.8.1.
- What is workplace information literacy?
  - ✓ A definition of what workplace information literacy entails was stated in Chapter 1 section 1.8.2. The accepted definition of workplace information

155

literacy was influenced by Kirton and Barham's (2005:365) explanation that it concerns *"appreciation of the need for information, to attain the skills to locate, organise and evaluate information and effectively use the information to solve problems, make decisions, create new knowledge and supply the information to others"*. This definition guided the survey at Central University of Technology, Free State as mentioned in Chapter 4 of this study, and also guided the development of a workplace information literacy framework as presented in Chapter 5.

- Why is information literacy important for the workplace?
  - ✓ This sub-problem has been addressed by the consulted literature as discussed in Chapter 2, as well as the introductory section in Chapter 1. The importance of workplace information literacy is furthermore reflected in the findings of the empirical study (Chapter 4).

- What efforts have been reported on promoting workplace information literacy?
  - ✓ Chapter 2 covered efforts and research addressing workplace information literacy, interventions and findings related to such interventions. Views and opinions on how such findings and interventions could yield even better results were also stated.

- What are the current practices at the Central University of Technology, Free State with regard to information literacy in the workplace?
  - ✓ The data collected through questionnaires and interviews made it clear that research participants were not familiar with the concept workplace information literacy. The need for a workplace information literacy training programme, interventions and how the programme was to be rolled out were stated by questionnaire respondents and interview participants. This was reported in Chapter 4 of this study.

- What are the needs for workplace information literacy at the Central University of Technology, Free State?
  - ✓ Needs analysis that includes institutional needs analysis, individual needs analysis and situation analysis have been identified as the main determinants of the need for a workplace information literacy programme. This includes, amongst others, considerations on having workplace information literacy as part of the job descriptions, having workplace information literacy as compulsory or optional and inclusion of the programme into the staff induction programme, designing a policy, drafting a programme etc. Both the qualitative and quantitative data resulting from the empirical component called for the

156

design of a workplace information literacy programme, a training support plan and implementation of a programme for workplace information literacy.

- What does an information literacy framework need to address in an academic setting such as Central University of Technology, Free State?
    - ✓ This sub-problem has been addressed, considering views from the literature and data collected during empirical survey. The following were highlighted:
        - o Institutional buy-in including management, academic staff and support services staff.
        - o Inclusion into the institutional strategic plan as well as policy formulation.
        - o Needs analysis and situation analysis.
        - o Programme design and development.
        - o Programme administration.
        - o Awareness raising and marketing.
        - o On-going programme monitoring and evaluation.

Mechanisms of how workplace information literacy interventions could be conducted were also addressed. A detailed discussion covering all the necessary steps based on the practices discussed in Chapter 2, supported by recommendations from empirical findings in Chapter 4, was presented in Chapter 5 with the necessary specifications of the framework components.

6.4. METHODOLOGY REVISITED

The study employed a mixed method research approach. Both questionnaires and interviews were used to collect quantitative and qualitative data. The questionnaire consisted of both close ended and open ended questions and was distributed to a random sample of 200 respondents. The groups that were covered for the study were from the following: faculties and academics, resources and operations including Human Resource, Student Services including Student Finance, and the Library. One hundred and twenty one (121) questionnaires were returned for analysis giving a return of 60.5%. The questionnaires were analysed using the SPSS data analysis software.

For purposes of the interviews, 20 participants were selected (4 participated in individual interviews and interviews with committees; there are thus 24 entries in Table 1.3). The participants were mostly part of the institution's top structure and senior management and members of committees indicated in Chapter 1 Table 1.2. The Free Attitude interview

technique was used to allow participants to elaborate freely and a tape recorder was used to record data, with a transcript developed thereafter for analysis.

Although the responses from the questionnaire could be presented statistically, the interviews elicited information on opinions and suggestions on how workplace information literacy could be implemented. The results from the questionnaires and interviews complemented each other in proposing the cornerstone for workplace information literacy framework (section 4.4) as presented in Chapter 4.

6.5. BRIEF SUMMARY OF THE KEY FINDINGS

A summary of key findings from this study is presented below, including literature findings and findings from the empirical data.

6.5.1. Literature findings

Workplace information literacy was studied in different contexts including higher education, the public sector, and private sector. Success stories and case studies were presented. Different aspects related to workplace information literacy presented in the literature, include:

- Opinions on the value of workplace information literacy.
- Research that has been conducted on workplace information literacy.
- Reported case studies on operational workplace information literacy practices.
- Suggestions on how workplace information literacy can be implemented in organisations.

The literature recommendations contributed significantly in the design of the empirical data collection tools as well as in guiding the development of the presented framework.

6.5.2. Findings from the empirical data

The importance of workplace information literacy was noted and emphasised in the empirical findings. The information challenges that the respondents go through in their work were highlighted including the fact that information literacy could give them a competitive advantage.

Challenges faced among others included:

158

- ✓ What to include as skills to be addresed in the workplace information literacy programme.
- ✓ Negative experiences when searching for information.
- ✓ Task completion challenges. This challenge appears to be related to information behaviour (IB). Arnott (2010:469) refers to this as "… *the totality of human behaviour in relation to sources and channels of information including both active and passive information seeking, and information use*".
- ✓ Attitudes and resistance towards the introduction of workplace information literacy.
- ✓ Time factor.
- ✓ Buy-in and commitment from management.
- ✓ Budget allocation for programme implementation.
- ✓ The need to be updated on new developments so that whatever is being delivered to students should be in line with current practices and support their professional developments was also noted. This statement is similar to the findings noted by Sokoloff (2012:1-17) in an article focusing on the information literacy skills employers expect.
- ✓ Managers thinking that people know when in fact they do not.

- Implications if workplace information literacy is not addressed include:
  - ✓ Lack of workplace information literacy skills results in missed opportunities, information overload, information anxiety and misinformation.
  - ✓ Taking wrong decisions and giving incorrect advices that could result in financial implications.
  - ✓ Being rendered inefficient.

It became clear that with the challenges noted in the literature and the empirical data findings, a framework with structured components could be developed. The next section takes a brief look at how the framework came about and how it could address the challenges noted.

6.5.3. Framework development revisited

The purpose of this study was to determine what a framework for workplace information literacy should entail. Such a framework was presented in Chapter 5 section 5.2, including a detailed discussion thereof in sections that followed. It became evident that a workplace information literacy framework at an academic institution such as the CUT should focus on:

- Establishing buy-in which include among others university management buy-in, academic staff buy-in and support services staff buy-in.
- Establishing needs analysis such as institutional needs analysis and individual needs analysis.
- Establishing situation analysis in terms of resources and staff availability.
- Alignment of workplace information literacy with the strategic plan which includes, formulation of a workplace information literacy policy, programme design and development, programme administration and on-going monitoring and evaluation.

6.6. CRITIQUE AND JUSTIFICATION OF THE STUDY

Although the literature was searched, it could not provide a standardised framework which could be used as a point of reference. The purpose of this study was therefore to develop a framework which could be used as a template for organisations to develop their own workplace information literacy programmes. One of the other important reasons was to ensure that South Africa is on par with developing countries in as far as workplace information literacy developments and interventions are concerned.

Although the research is limited to one institution, it is considered a useful point of departure where reference can be sought by other researchers. A more comprehensive survey would, however, cover more than one institution and include private and public sectors for the findings to be all encompassing.

6.7. RECOMMENDATIONS

The next sections offer recommendations for practice (i.e. for practical interventions) and for further studies.

6.7.1. Recommendations for practice

The following suggestions are made for practice:
- Extension of needs analysis at Central University of Technology, Free State on individual level to include a wider spectrum of staff levels.
- Pilot project at Central University of Technology, Free State to determine the effectivess of workplace information literacy and identify areas of improvement.

160

- Assessment of pilot project involving all stakeholders, management, academic staff and support service staff.
- Determining a curriculum with outcomes and content according to the needs identified at Central University of Technology, Free State.
- Alignment of a workplace information literacy programme with regard to the needs of academic information literacy for under-graduates.
- Promotion of the framework to other workplace sectors.

6.7.2 Recommendations for theory

It is suggested that studies of workplace information literacy are aligned with studies of task-based information behaviour (for example as reported by Vakkari, 2003) and models of the information behaviour of professionals such as teachers (reported by Bitso & Fourie, 2011).

It is suggested that a systematic review is conducted to compare findings of studies on workplace information literacy from the three different sectors, academic, private and public sector to record similarities and differences that can be considered in a model for workplace information literacy and studies that can as well focus on raising awareness regarding workplace information literacy and information behaviour.

6.7.3 Recommendations for further research

Considering the importance of workplace information literacy, it is suggested that:
- Studies are conducted at other tertiary institutions in the area of workplace information literacy.
- Comparative studies between similar institutions are conducted.
- Workplace information literacy as part of job descriptions and means for assessment where further needs can be identified is investigated.
- Training of librarians for workplace information literacy related jobs is investigated.
- Suitability of task-based information behaviour as frameworks for studies on workplace information literacy are investigated.

161

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162

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173

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177

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180

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ANNEXURE A: UNIVERSITY OF PRETORIA RESEARCH APPROVAL LETTER

UNIVERSITEIT VAN PRETORIA
UNIVERSITY OF PRETORIA
YUNIBESITHI YA PRETORIA

Departement Elektriese, Elektroniese & Rekenaar-Ingenieurswese
Department of Electrical, Electronic & Computer Engineering
Dipatemente ya Electrical, Electronic le Computara

Reference number: EBIT/22/2011   19 July 2011

Ms J M Molopyane
6 Anjosta
Andries Pretorius street
Bloemfontein
9300

Dear Ms Molopyane

YOUR RECENT APPLICATION TO THE FACULTY COMMITTEE FOR RESEARCH ETHICS AND INTEGRITY

1.   I hereby wish to inform you that the research project titled "A framework to promote workplace information literacy in academic settings: Central University of Technology, Free State as a case study"   has been approved by the Committee.

        This approval does not imply that the researcher, student or lecturer is relieved of any accountability in terms of the Codes of Research Ethics of the University of Pretoria, if action is taken beyond the approved proposal.

2.   According to the regulations, any relevant problem arising from the study or research methodology as well as any amendments or changes, must be brought to the attention of any member of the Faculty Committee who will deal with the matter.

3.   The Committee must be notified on completion of the project.

The Committee wishes you every success with the research project.

Prof. J.J. Hanekom
Chairman: Faculty Committee for Research Ethics and Integrity
FACULTY OF ENGINEERING, THE BUILT ENVIRONMENT AND INFORMATION TECHNOLOGY

ANNEXURE B: CENTRAL UNIVERSITY OF TECHNOLOGY, FREE STATE RESEARCH PERMISSION REQUEST LETTER

6 Anjosta
Andries Pretorius Street
Bloemfontein
9300
20 July 2011

The Research Dean
Central University of Technology, Free State
Private Bag X20539
BLOEMFONTEIN
9300

Dear Professor

PERMISSION TO CONDUCT RESEARCH

In here, I Jeannet Makasi Molopyane (staff no: 12104) request permission to do research for a Masters Degree. The title of my Dissertation is: "A framework to promote workplace information literacy in academic settings: Central University of Technology, Free State as a case study".

I am going to distribute questionnaires and conduct interviews with staff members of the CUT.

I hope that my request will meet your favourable consideration.

Yours Faithfully
Jeannet Makasi Molopyane

ANNEXURE C: RESEARCH QUESTIONNAIRE

Questionnaire

A framework to promote workplace information literacy in academic settings: Central University of Technology (CUT), Free State, as a case study

Degree: Masters in Information Science (MIS) Research

Researcher: Molopyane Jeannet Makasi

Tel: (051) 507-3464; Fax: (051) 507-3468; Cell: 082-631-2238

E-mail: jmolopya@cut.ac.za

Supervisor: Prof Ina Fourie

Department of Information Science, University of Pretoria;

Tel: (012) 420-5216; Fax: (012) 362-5181; Cell: 082-707-8062

Email: ina.fourie@up.ac.za

> **Purpose:** The purpose of this questionnaire is to help with the design of a framework for workplace information literacy.
>
> **Definition of the concept workplace information literacy:** Workplace information literacy has been defined as a set of abilities whereby employees recognise that they need information, are able to locate, organise and use the information effectively, and to present information accurately to the intended recipient (Chuek, 2002).
>
> **Instruction:** Kindly fill in the provided questionnaire which will assist the researcher in meeting her research objectives. Your input in this research will be appreciated and treated with confidentially.
>
> NB: Please make a cross in the relevant checkboxes.

Section A: Demographic information

1. What is your highest academic qualification?

Grade 12 certificate	Diploma	Junior degree	Honours	Masters	PhD

Other (please specify)...

2. How long have you been in your current position?

Less than a year		1-2 years		3-4 years		5-6 years		More than 6 years	

3. What is your current job designation, and in which section and department?

Level	Section	Department
Senior management		
Middle management		
Junior level		

Section B: Information needs

4. How often does your job require information?

Daily		Weekly		Monthly	

5. I am able to locate, analyse and assess the value of the information accessed. *Please indicate your opinion on the following scale, by marking one of the options.*

Agree	Disagree	Strongly agree	Strongly disagree

6. Most of the time when I search for information, I find myself experiencing information overload, information anxiety and misinformation at times. *Please indicate your opinion on the following scale, by marking one of the options.*

Information overload		Information anxiety		Misinformation	
Agree		Agree		Agree	
Disagree		Disagree		Disagree	
Strongly agree		Strongly agree		Strongly agree	

185

Strongly disagree		Strongly disagree		Strongly disagree	

7. Which of the following sources do you consult in order to execute your job? *Please mark all applicable options.*

Local intranet	
Administrative documents	
Institutional policies	
Databases the library subscribes to	
Peer reviewed and accredited publications	
Conference papers	
Internet search engines	
Known websites	
Social networking sites	
Other (please specify)	

8. After consulting the information sources, I usually find it easy to synthesise, interpret and evaluate the information. *Please indicate your opinion on the following scale, by marking one of the options.*

Synthesise information		Interpret information		Evaluate information	
Agree		Agree		Agree	
Disagree		Disagree		Disagree	
Strongly agree		Strongly agree		Strongly agree	
Strongly disagree		Strongly disagree		Strongly disagree	

9. The impact of workplace information literacy competency will give me a competitive advantage in carrying out my information tasks. *Please indicate your opinion on the following scale, by marking one of the options.*

Agree	Disagree	Strongly agree	Strongly disagree

10. I am able to determine my information needs but need the skills to effectively and efficiently complete the information tasks and apply the information for presentation. *Please indicate your opinion on the following scale, by marking one of the options.*

Agree	Disagree	Strongly agree	Strongly disagree

11. People not equipped with workplace information skills will face information challenges and miss out on the opportunities offered by information. *Please indicate your opinion on the following scale, by marking one of the options.*

Agree	Disagree	Strongly agree	Strongly disagree

Section C: Staff training needs analysis

12. Please indicate with which of the following search functions you are familiar for example as found with databases, Google Scholar, and search engines. You may indicate more than one option.

Basic search functions	
Advanced search features	
Saving search profiles	
New features	
None	
Other (please specify)	

13. Please indicate with which of the following issues on referencing you are familiar with. You may indicate more than one option.

Referencing techniques	
Plagiarism and self-plagiarism	
Use of reference management software	
Personal information management	
No familiarity with any	

14. If workplace information literacy skills training are provided which format of training would you prefer? *Please mark in order of your preference. Start with 1 of your most preferred option to 4 of your least preferred option.*

Individual training (i.e. one-on-one)	
Tailored group sessions (for example for people from a section)	
During new staff induction programme	
General workshop for people from different departments	
Other (please specify)	

15. If workplace information literacy skills training are provided, what medium of presentation would you prefer for the training? *Please mark in order of your preference. Start with 1 of your most preferred option to 6 of your least preferred option.*

Webinars	
Video conferences	
Multimedia programmes	
Face to face instruction	
Self-paced learning through an electronic management system	
Mobile delivery	
Other (please specify):	

16. What are your preferences for intervals in participating in training? *Please mark in order of preference. Start with 1 of your most preferred option to 5 of your least preferred option.*

Monthly	
Quarterly (i.e. every three months)	
Bi-annually (i. e. once every semester)	
Annually	
Ad hoc training (on demand training)	

Other (please specify)

17. How would you rate your computer literacy skills? *Please indicate your opinion on the following scale, by marking one of the options*.

Poor	Average	Good	Very good	Excellent

18. How would you rate your information literacy skills? *Please indicate your opinion on the following scale, by marking one of the options*.

Poor	Average	Good	Very good	Excellent

Section D: Problems

19. Training on workplace information literacy skills is important to organisations. *Please indicate your opinion on the following scale, by marking one of the options*.

Strongly agree	Agree	Disagree	Strongly disagree

20. The university management should include workplace information literacy training as part of the corporate strategy. *Please indicate your opinion on the following scale, by marking one of the options*.

Strongly agree	Agree	Disagree	Strongly disagree

21. The university should have a training support plan in place for workplace information literacy training needs. *Please indicate your opinion on the following scale, by marking one of the options*.

Strongly agree	Agree	Disagree	Strongly disagree

22. Should workplace information literacy be enforced or optional? *Please indicate your opinion by marking one of the options.*

Enforced		Optional	

23. In your opinion would you say there should be assessment and certification of workplace information literacy? *Please indicate your opinion on the following scale, by marking one of the options.*

Strongly agree	Agree	Strongly disagree	Disagree

24. Should workplace information literacy be included as part of the job description? *Please indicate your opinion on the following scale, by marking one of the options.*

Strongly agree	Agree	Strongly disagree	Disagree

25. Workplace information literacy assessment should form part of the recruitment process. *Please indicate your opinion on the following scale, by marking one of the options.*

Strongly agree	Agree	Strongly disagree	Disagree

26. In your opinion who should be included in the training?

………………………………………………………………………………

27. In your opinion which section of the university should take responsibility for workplace information literacy programmes?

………………………………………………………………………………

28. Do you think that there are other problems that are related but not addressed by this questionnaire? If yes, please explain. If you have suggestions on dealing with such problems it will be appreciated if you will mention these.

YOUR PARTICIPATION IN THIS RESEARCH IS HIGHLY APPRECIATED.

ANNEXURE D: INTERVIEW SCHEDULE

Interview guide

A framework to promote workplace information literacy in academic settings: Central University of Technology (CUT), Free State - a case study

Researcher: Jeannet Makasi Molopyane, Central University of Technology, Free State Library and Information Services, Tel: (051) 507-3144; E-mail: jmolopya@cut.ac.za

Supervisor: Prof Ina Fourie, Department of Information Science, Faculty of Engineering, Building Environment and Information Technology, University of Pretoria; Tel: (012) 420-5216; E-mail: ina.fourie@up.ac.za

Definition of the concept: workplace information literacy

Workplace information literacy has been defined as a set of abilities whereby employees recognise that they need information, are able to locate, organise and use the information effectively, and to present information accurately to the intended recipient (Cheuk, 2002).

1.   What is your perception of the importance of workplace information literacy?

2.   What role does information play in developing expert skills in your field of speciality? Briefly explain.

3.   What is your opinion on the importance of training which addresses workplace information literacy?

4.   Do you think workplace information literacy should be a prerequisite for employment at Central University of Technology, Free State? Please explain.

5.   Which skills should in your opinion be addressed in a workplace information literacy training programme?

6.   What recommendations can you make for the nature of workplace information literacy training?

7.   Should workplace information literacy skills become part of the CUT's corporate plan, and if so, which recommendations can you offer in this regard?

8.   Who, in your opinion, should take responsibility for workplace information literacy training?

9.   What challenges do you foresee for workplace information literacy training at the CUT?

10.   What awareness initiatives can you suggest to ensure the implementation of workplace information literacy training?

11. Do you have any suggestions on the monitoring of the application of workplace information literacy?

12. What is your opinion on the role the library should play in promoting workplace information literacy?

13. This question will only be put to committee members: As a committee member, what role should the specific committee to which you belong play in ensuring that workplace information literacy becomes an institutional practice?

NNEXURE E: CONSENT FORM

Informed consent form
(Form for research subject's permission)

(Must be signed by each research subject, and must be kept on record by the researcher)

1   Title of research project: **A framework to promote workplace information literacy in academic settings: Central University of Technology (CUT), Free State as a case study**

2   I …………………………………………… hereby voluntarily grant my permission for participation in the project as explained to me by

Jeannet Molopyane

3   The nature, objective, possible safety and health implications have been explained to me and I understand them.

4   I understand my right to choose whether to participate in the project and that the information furnished will be handled confidentially. I am aware that the results of the investigation may be used for the purposes of publication.

6   Upon signature of this form, you will be provided with a copy.

Signed: _____   Date: _____

Witness: _____   Date: _____

Researcher: _____   Date: _____