STRATEGIES IN INFORMATION LITERACY INSTRUCTION IN ACADEMIC INFORMATION SERVICES

by

DAISY NTHABISENG SELLOANE SELEMATSELA

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SUMMARY

The South African academic information services are starting to pay attention to the role played by instruction librarians. There is an acknowledgement that librarians as ‘educators’ need to learn how to teach information literacy skills. Instruction librarians are either not trained educators or do not have a pedagogical background. Many instruction librarians were placed in, or found themselves, assuming a teaching role with regard to information literacy instruction, and subsequently refined their craft while on the job.

The motivation for this study was that librarians as ‘educators’ are faced with challenges that impact on their teaching role. They have to understand the teaching methodologies and the application of adult learning principles to the facilitation of information literacy skills programmes. The success of facilitation and development of information literacy skills programmes depends on the instruction librarians’ ability to work in collaboration with academic departments, curriculum designers and other librarians.

The study was carried out in two parts: a literature survey and an empirical investigation. The investigation was confined to academic libraries and information services that have an instruction librarian or subject librarian who facilitates information literacy skills instruction. The GAELIC (Gauteng and Environs Library Consortium) members were surveyed in order to limit the study to the nine participating libraries within the consortium.

The findings of the study were supportive of the objective that there is a desperate need to have understanding, knowledge and skills regarding the dynamics involved in the teaching of information literacy skills, in order to make the programme a success. The study proposes a competency framework for implementation as a management tool for designing key performance areas (KPA’s) of instruction librarians.
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CHAPTER 1

INTRODUCTION

The information profession has been transformed in many ways: the workplaces change, resources change, necessary skills change, colleagues change, even the rate of change itself changes. The most obvious changes in the library are information technology. The need for expertise in the use of electronic library products has changed the face of library instruction. Students and academics need to learn how to use the digitised or computerised library and Web resources, and teaching environments such as the electronic library classrooms, methods, and personnel are needed to teach these resources (LaGuardia 2001:1).

In academic libraries, much has been said and written about how the Internet, for example, has affected the day-to-day work of librarians in areas such as reference and collection development, less has been said about how other organizational imperatives such as instruction help redefine the role of information professionals in the academic library of the 21st century.

The rise of information literacy instruction as a strategic direction for libraries requires the instruction coordinator to act as a leader both within the library and across campus. The coordinator has the responsibility for effectively articulating a vision and systemic plan for instruction both to colleagues within the library and to the rest of the institution. Instruction coordinators are also unaware of the range of challenges they must face in order to balance the issues surrounding the design, development, and promotion of an instruction programme.

Fowler and Walter (2003: 461) maintain that as librarians examine the new realities that shape their professional work, there are expectations for the instruction coordinator. These expectations are described by the instructional leadership model (Fowler and Walter 2003:461).

According to Fowler and Walter, instructional leadership is a concept drawn from the literature of educational administration to describe the role that a school principal plays in helping to create a culture of instruction and assessment in a school, placing student
learning at the centre of the instructional process, and fostering the professional growth of teachers as classroom instructors ... Today, instructional leadership is a concept that defines a leadership role not only for the principal, but also for teachers who lead by constantly refining their own teaching, providing advice and expertise to colleagues through mentoring and continuing education, and participating in peer review both of individual teachers and of the instructional program (Fowler and Walter 2003:461).

The instructional leadership model is perceived and appreciated by instruction coordinators as a move that helps to explain how forces both in the profession and in higher education are affecting the roles the coordinators play in the library and on campus.

Fowler and Walter (2003:462) identified several factors that suggest the need for a new way of conceiving the role played by the librarian assigned to coordinate - to lead - the instruction programme in an academic library, namely:

- the commitment to information literacy as a strategic direction for academic libraries;
- the need for more librarians to be involved in the design and delivery of instructional services, either alone, or in collaboration with members of the classroom faculty;
- the rise of innovative, interdisciplinary initiatives on campuses that provide opportunities for rethinking the ways in which library instruction can support (and enhance) the academic curriculum;
- the call to create student-centred learning opportunities that foster critical thinking and fluency in information technology; and,
- the need to demonstrate measurable achievement in these areas through a systematic programme of assessment.

What these factors suggest, is that with developments in instructional technology, there will always be a need for ongoing professional education that prepares novice instruction librarians to identify instructional objectives, design lesson plans, and create appropriate classroom activities and assignments, and also for experienced coordinators who are expected to design electronic classrooms, develop Web-based instructional services, and create instructional materials meant for use within courseware such as WebCT (Fowler and Walter 2003:462)

According to Fowler and Walter (2003: 462), for instruction programmes to support the trends in higher education and to meet both the profession’s commitment to preparing
library users who are information literate and the growing demand for life-long learners, there is a need for well-trained and effective leaders for the programmes to be a success.

The reality is that, as library teachers, instruction librarians’ primary role is that of teaching, but, as pointed by LaGuardia (2001:3), teaching, our stock in trade is not yet generally regarded as a true speciality within the library field. In fact, library instruction experience and skills have only recently begun to be routinely included as a requirement in library position advertisements and still show up mostly in the desirable qualifications category rather than as required. Instructional expertise is an add-on feature for most job advertisements. This is also reflected in the South African job advertisements.

South African job advertisements are starting to pay a little attention to instruction librarians, seemingly acknowledging that information professionals need to learn how to teach information literacy skills. According to LaGuardia (2001:2-6) instruction librarians are made, they are not born with the teaching skill. Many instruction librarians were placed, or found themselves, in the instructional field because no one else wanted to teach information literacy.

In support of LaGuardia, Tuttle (2001:141) maintains that the majority of librarians received little or no training in graduate school and have learned and refined the craft on the job.

The South African observation is that a librarian becomes aware of information literacy programmes once they are in the professional field, no formal training is provided at the library and information science schools, nor does information literacy forms part of the core curricula. Information professionals learned through trial and error and in collaboration with other information services.

LaGuardia (2001:1) notes that within the past ten years library schools such as the UCLA, have been offering in their curricula formal, credit-bearing courses on how to teach in libraries. And if teaching is in the curriculum, it is offered as a single course rather than as a multi-course sequence to achieve a specialisation in library instruction. According to LaGuardia, there is a substantial need for good library instruction in all libraries. Good library instruction can overcome flaws and faults in a library. There are very few books yet published specifically on the subject of how to put together a library information literacy programme.
LaGuardia (2001:3) and Tuttle (2001:141) are both of the opinion that, the teaching function of instruction librarians is underappreciated by academic departments. Tuttle further asserts that administrators and academics are often the first to say that the library is the heart of the institution, but they may not be able to say what the librarian’s role is in the education process. For instruction librarians to become recognised as teachers there is a need for the writing and compiling of a teaching portfolio. A teaching portfolio is a collection of materials that document teaching performance (Tuttle 2001:141). Tuttle maintains that over 400 institutions in the United States and Canada, have embraced the teaching portfolio format because it produces a complete picture of a member’s teaching ability. Teaching portfolios are valuable for instruction librarians to become better teachers and to document their unrecognised teaching contributions.

According to Gunter (2001:94) there is usually only one instruction librarian whose main job is instruction in each library. It is then up to that one individual either to do all the teaching for the institution or to coordinate the efforts of others who are only ad hoc in the instruction in many cases. It is not physically possible for a single person to reach and teach all students and academics. Instruction librarians depend on other librarians whose skills and strengths are not in the realm of teaching, to carry some of the loads.

LaGuardia (2001: 3 - 6) maintains that as the methods of information delivery proliferate, there is a demand for information literacy presentations to both users and colleagues. Instruction librarians, as experts in instruction, are expected to teach their colleagues how to teach. The transfer of teaching expertise to librarians, whose strength is not in teaching, is complicated by the instruction librarian’s humility and public speaking phobia. According to LaGuardia (2001:6), instruction librarians take their teaching skills for granted, even though they have put in years of thought and effort in learning how to teach. This guilt feeling of taking skills for granted sends a perception that can be interpreted as anybody can teach. Public speaking does not come naturally to some librarians; hence, the challenge instruction librarians face in providing these librarians with the tools to overcome the teaching deficiency.

The dependency of instruction librarians on the other librarian colleagues poses some questions and raises assumptions on whether information literacy sessions are redundant and whether they are duplicating the functions of the reference desk. These assumptions emanate from the fact that some librarians simply do not like to teach and will never be good teachers (Gunter 2001:95). The task is to empathise with concerned colleagues by
making them realise that everyone=s time is at a premium and some librarians will never see themselves as having time for instruction.

Fowler and Walter (2003:463) identified several factors that can hinder the coordinator=s ability to communicate a vision and a plan for the instruction programme to colleagues, for example:

- Many librarians participate in instruction as only one element of their professional duties;
- Instruction programmes are often divided between the instructional services provided to undergraduate students and those provided to postgraduate students, with different librarians taking responsibility for each (for example, instruction librarian vs. subject specialists); and,
- Few librarians have the opportunity to interact with administrators and academic or teaching faculties across campus on a regular basis, and may therefore not be as aware of relevant instructional initiatives on campus.

According to the instructional leader model, the way in which one meets this communication challenge reflects the degree to which one is acting as an instructional leader. Fowler and Walter (2003: 463) are of the opinion that to act as an instructional leader, the coordinator must think creatively about how to foster communication among colleagues.

These librarians require for support a specialised set of skills such as mastering teaching techniques of preparation and presentation that can be applied in a variety of classes across disciplines, and in both designing and teaching the use of new programmes and technologies (Gunter 2001: 94 - 95). This empathy and fear of being involved with training initiatives is enforced by the lack of institutional support, especially continuous development and encouragement of instruction librarians.

The library instruction-related initiatives such as the integration of information literacy programmes and competencies into the curriculum cannot be successfully designed and implemented single-handedly. For the programmes to be effective, the instructional librarian is expected to make contact and solicit support and contributions from various university stakeholders such as student bodies, academic departments, library peers and administrators. Familiarity with departments and campus formations concerned with student educational outcomes such as faculty teaching centres, writing centres, and participation in campus-wide planning offer possibilities for new partnerships (Researcher Scholarship Committee of ACRL=s Instruction Section 2003: 111).
According to Gunter (2001: 93) the biggest challenge and barrier instruction librarians are faced with is the assumption that library instruction and information literacy programmes need no focus and context. What this statement is trying to convey is the perception that a generic, one-size-fits-all information literacy session will meet or address the instruction needs of any library assignment and every user. This observation embraces the importance of collaboration between academic departments, student support and the instruction librarian.

Moore and Abson (2002:34 - 36) emphasise the need to establish collaborative working partnerships with those involved in the learning and teaching process. Information specialists and academics are expected to provide the content and the means for integration into an existing course. Furthermore, information literacy programmes should meet some of the Qualifications and Curriculum Authority (QCA - United Kingdom) skills requirements. The requirement indicates that information skills should be integrated into the course and should pay due attention to diversity, inclusivity and flexibility. This notion is also applicable to the South African situation as the Higher Education Act, the South African Qualifications Authority (SAQA) and the National Qualifications Framework (NQF) embrace the same principles. The challenge is posed by the inadequacy of the Library and Information Services profession in not yet having written the required unit standards for information literacy through the Standard Generating Body (SGB).

A note of caution is made by Dupuis, Fowler and Simpson (2001: 79 - 85) that instruction librarians must be sensitised to the politics of collaborating with the academic department and library peers. According to Dupuis et al. (2001:79) the establishment of collaborative partnerships take time. Those who enter into these kinds of partnerships must be prepared to spend a great deal of effort, negotiation and communication. The challenge for instruction librarians is whether they have the knowledge and skill to handle large scale projects of this nature, which requires insight into the assumptions, beliefs, and practices that each stakeholder group or person brings to the project.

Instruction librarians are often requested to assume the role of a public relations arm for the library. The assumption made is that information sessions need to be conducted to get the word out, or to merely get people in the library. With this scenario, the educational mission of the programme is lost as the instruction librarian has evolved into a public relations librarian (Gunter 2001: 94).
The assumed role of a public relations librarian can be an advantage for the instruction librarian, as noted by Price (2001:161) as librarians we are sometimes more successful in training our patrons than we are in getting them to come to the library for instruction. The public relations skills can be used to convince and encourage faculty to accept library instruction for their students.

The Research and Scholarship Committee of ACRL’s Instruction Section (2003:108) maintains that formal and informal library instruction has evolved to include groups previously under-served, such as English-as-a-second-language students, students with disabilities, returning adult students, off-campus and distance education students, high school groups, part-time and adjunct faculty, graduate and teaching assistants, academics and administrators. Each of these groups presents unique issues for library instruction and information literacy programmes.

For the student generation of the millennium, expectations are that information literacy sessions should be a commodity that is fun, entertaining, and directly, pragmatically useful - ... (Gunter 2001:95). The students’ expectations are that education must be fun and directly and immediately relevant in order to be valid. Instruction librarians are expected to empathise, and develop information literacy programmes and teaching around the student. Diffusion of the teacher - student environment can create an atmosphere of the consultant-client (Gunter 2001:95 - 96).

1.1 Motivation for this study

Library instruction and information literacy programmes, according to the Research and Scholarship Committee of ACRL’s Instruction Section; exists both as a function within the library and as a part of the overall mission of the university, college or educational institution (2003:111). The organizational structure of information literacy programmes varies from library to library. Some organizational models include a separate instruction unit or department with librarians assigned to it, a team coordinator of instruction, an instruction coordinator who does not supervise librarians directly, and instruction duties merged with reference or subject responsibilities.

Organizational differences determine instruction librarians’ responsibilities with the library; hence the question remains about the drawbacks and benefits of these different organizational models to the instruction librarians’ knowledge and skills.
The proposed research problem is motivated by the observation that, institutions recognise the importance of instruction librarians, but there is no support towards directing additional resources for developing librarians' instructional techniques and expertise. The South African experience is in sharp contrast to international trends. There are no accredited short courses and ongoing education for instruction librarians, there are no established models within the profession for developing instruction skills, including library and information school courses, continuing education programmes, workshops, seminars, conferences and institutes (Research and Scholarship Committee of ACRL’s Instruction section 2003:110).

The second observation is based on the premise that instruction librarians in academic libraries are presented with a number of challenges in the teaching of information literacy programmes. The socio-cultural environment of the library users has a bearing on the information literacy programmes. The South African education system influenced the way school leavers experience entry and adjustment into an academic institution. Language, culture, and ethnicity of clients influence the outcome of the information literacy programmes. Many African students, by virtue of their history of privation, are mature adult learners with full-time jobs, who mostly studied in their mother tongue from primary school to higher primary school. English instruction was only used from secondary school. Most of these students' first contact with a library is at an institution of higher learning.

Cultural learning styles also have an influence on the way library client's process information. The issue of client's norms and value systems also influences the process. Information - seeking behaviours, technological competencies, literacy skills, and research skills vary widely among library users (Research and Scholarship Committee of ACRL’s Instruction section 2003:109).

The third aspect which prompted the initiation of this study is that most librarians act as educators. This begs the questions of firstly, whose responsibility is it to prepare librarians to teach? Secondly, whether does the library and information science course or discipline offer this training to librarians? The assumption is that instruction librarian’s work from the premise that ‘if you know it you can teach it’. Instruction librarians find themselves thrown in the deep end as they do not understand or lack knowledge of the educational theories and methodologies that can be applied to information literacy instruction. The main challenge observed is that the learning of library instruction and information literacy programmes is intertwined with the socioeconomic, political and cultural differences, and librarians are not in
a position nor trained to handle such issues. There is no ongoing professional development of librarians as teachers. Librarians learn to teach by experience - by default. They do not really know how to fill this role as educators but are expected to manage a repertoire of strategies in a highly fluid situation.

The study will focus on the challenges experienced by academic information professionals participating in the teaching of library instruction and information literacy programmes in support of life-long learning and continuing education and whether they have the knowledge and skills to make the programme a success.

1.2 Research Problem

Information literacy instruction has become information competency for instruction librarians. Instruction librarians continually ask themselves about their role in higher education and whether they add value to the education system. Against this background, the research problem of this study can be stated as follows: Can the development of a competency profile or framework for instruction librarians improve the competencies required in information literacy instruction?

In order to solve this problem, the following objectives associated with the research problem are identified:

Objective 1: What are the challenges that instruction librarians must understand to be able to create a meaningful information literacy environment?

Objective 2: To what extent can the teaching methodologies and pedagogies be applied by instruction librarians?

Objective 3: Under which circumstances can the adult learning principles be applied by instruction librarians?

Objective 4: How can the collaborative partnerships add value to the teaching role instruction librarians assume?
1.3 Definitions of key concepts

According to Kerlinger (1986:27) the terms concept and construct are synonymous, but a distinction must be made between the two concepts. Dalton (1991:8) distinguishes between a concept and construct by stating that a concept is a term that expresses an abstract idea or general notion and a scientific construct is deliberately invented for a specific. Scientific constructs are defined in two ways; firstly, at the conceptual level, the constitutive definition explains how the concept relates to the theoretical scheme of the study. In order for a construct to be scientifically useful, it must be capable of being used in theories.

Secondly, the operational definition is a sort of manual of instructions to the investigator, in short, it states exactly how the concept is to be observed and measured (Kerlinger 1986:27). For the purpose of clarity and ease of reference, the key concepts will be defined at the conceptual and operational level. The comprehensive definitions of the terms adult education and curriculum design are contained in the relevant chapters.

1.3.1 Information literacy

Information literacy is defined differently by the various schools of thought. Information literacy as a concept is embedded into pedagogy. This tying of information literacy to educational issues has alerted the stakeholders in the education arena that a shift has occurred in that literacy is more than the ability to read and write. Literacy is in an evolving state, and it has become a dynamic concept. These shifts imply that information literacy is firmly embedded in the practices and outcomes of education in the information age; thus contributing to the holistic development of an individual.

According to the Council of Australian University Librarians (2001:1), information literacy is an understanding and set of abilities enabling individuals to recognise when information is needed and have the capacity to locate, evaluate, and use effectively the needed information.

Henri and Bonanno (1999:44) affirms that whatever information literacy reveals itself as, the literature is replete with a sense of urgency that essential learning areas include outcomes that ensure that all learners (be they in the workplace or in an educational institution) become information literate. Candy in Henri and Bonanno (1999:48) perceives the attainment of information literacy as both an educational and a lifelong goal.
Information literacy is a goal, which can be attained through a process that relies on the continuous learning of specific and evolving behaviours. It is a cluster of abilities of which the individual can employ to cope with and to take advantage of, the unprecedented amount of information which surround us in our daily life and work. It is not library skills, nor computer skills, nor even information-problem solving skills, but all of these necessary enhancers of information literacy.

Owen in Henri and Bonanno (1999:48), finds agreement with the Council of Australian University Librarians articulation of information literacy but expands the concept to include:

- that, beyond improving study and research skills, it serves to empower: to find out and act on information;
- it is a means of personal empowerment for all, not just young students;
- besides independent and self-directed learners, interdependent learners; and
- enrichment and enlivenment of lifelong learning

The information literacy home page of the Department of Information Studies Sheffield University (2001), defines information literacy as the adoption of appropriate information behaviour to obtain, through whatever channel or medium, information well fitted to information needs, together with critical awareness of the importance of wise and ethical use of information in society.

Henri and Bonanno (1999:49 - 50) are of the opinion that if the underlying principle of education is to develop the individual to be literate, there need to be a continuous development within educational institutions to instil the pedagogy of information literacy as essential for the information society and the learning society. The current practice is that, instruction librarians are the ones carrying the burden in terms of guiding future generations in becoming lifelong learners, the one accepted outcome of becoming information literate. Henri and Bonanno further notes that this kind of activity fuels the notion that information literacy appears to be synonymous with libraries.

As operationalised for the current research, information literacy is the ability to access, evaluate, and use information from a variety of sources.
1.3.2 Library instruction

Library instruction has foundations in educational pedagogies including liberal, traditional, behavioural, progressive, and radical theories (Research and Scholarship Committee of ACRLs= Instruction Section (2003:108:)). According to Arp and Woodard (2002: 128) the activity of librarians who teach has been defined through a number of most well known terms: library orientation, library instruction, bibliographic instruction, and information literacy instruction.

As operationalised for the current research, information literacy instruction will be used interchangeably with library instruction.

1.3.3 Instruction librarian

The primary role of the instruction librarian is teaching information literacy skills to students, faculty, and staff (Tuttle 2001:141).

As operationalised for the current research, instruction librarian will be used to refer to any academic librarian whose core competencies include information literacy instruction.

1.3.4 Life - long learning

The Council of Australian University Librarians (2001:2), maintains that information literacy is a prerequisite for lifelong learning and is common to all disciplines, to all learning environments, and to all levels of education. Therefore lifelong learning can be defined as ongoing learning through a continuous, supportive process that stimulates and empowers individuals to acquire and apply the knowledge, values, skills and critical understanding, required to respond confidently and creatively and to rise to the challenges of a changing social, political and economic environment (Kilfoil 2000:4).

Luckett (1997:9) summarizes lifelong learning as to develop a range of general transferable skills.

Operationally, through education and learning, men and women are agents of their own education. Learning should extend throughout life to include all skills and branches of knowledge, through the use of all possible means for the full development of the personality.
### 1.3.5 Framework

The Collins English Dictionary defines framework as follows:

1. A structural plan or basis of a project;
2. A structure or frame supporting or containing something;
3. Frames collectively;
4. Work such as embroidery or weaving done in or on a frame\(^{(1986:601)}\).

### 1.3.6 Curriculum design

According to Connelly and Lantz (1991: 15), the Latin root for the word curriculum means *racecourse*. Curriculum is a massive, comprehensive, ill-defined field and there is no widely accepted definition of the term. Curriculum is a racecourse of subject matters to be mastered\(^{(Zais\,1976:7)}\). In clarifying the concept racecourse, Steyn (1991: 45) notes that in a sense the idea of schooling is a race over a course to receive something at the finishing line. Generally this includes a list of subjects that need to be completed. However, the content and process involved in that subject matter are not precisely explained nor are the learning outcomes and the experiences undergone while taking a course. Curriculum may refer to the planned learning experiences to which the student is exposed\(^{(Zais\,1976:16)}\).

Curriculum design refers to the arrangement of the components or elements of a curriculum\(^{(Zais\,1976:16)}\). The components of curriculum include aims, goals, and objectives; the subject matter or content; learning activities; and evaluation following a pattern of content organization (Zais 1976: 16).

### 1.3.7 Adult education

The term adult education denotes the entire body of organized educational processes, whatever the content, level and method, whether formal or otherwise, whether they prolong or replace initial education in schools, colleges and universities as well as in apprenticeship, whereby persons regarded as adult by the society to which they belong develop their abilities, enrich their knowledge, improve their technical or professional qualifications or turn them in a new direction and bring about changes in their attitudes or behaviour in the twofold perspective of full personal development and participation in balanced and independent

1.4 Proposed method of investigation

1.4.1 Literature study

As a preliminary step in the investigation of the challenges instruction librarians experience in the teaching of library instruction and information literacy programmes, a literature study of the subject field is conducted. This is important for two reasons. The first is to define the key concepts and to present a theoretical scheme for the research design. The second will be to identify related research reported in the literature which can be used as a basis to extend the findings of the empirical survey to be used in this study.

According to Mouton (2001:180) a comprehensive literature review provides the researcher with a good understanding of issues and debates in their area of interest, including current and past theoretical thinking, definitions and their results. The limitation of a literature review is that it only summarises and organises the existing scholarship, leading to new theoretical insights, which must still be tested empirically.

In order to assess the skills and knowledge of instruction librarians, it is necessary to determine the challenges that have an influence on information literacy instruction activities. Chapter two explores the information literacy learning levels of students and their preconceptions regarding information literacy instruction. The unique challenges experienced by instruction librarians are also identified and discussed.

Since instruction librarians are not educators, Chapter three presents the learning theories and principles that influence the way adults learn, and the characteristics and aspects of adult learning that can be used to facilitate information literacy instruction. Chapter four focuses on course development and particular attention is given to the conceptual mapping process. As an extension to the course design team, the technical and functional dimensions of three collaborative partnerships instruction librarian’s can enter into are discussed.
1.4.2 Empirical investigation

Against the above background - that the theoretical insights must be empirically studied - it is proposed that the study be conducted within the qualitative paradigm. Marshall and Rossman (1994:26) maintain that the qualitative approach to research is uniquely suited to uncovering the unexpected and exploring new avenues.

A distinguishing characteristic of qualitative research is the fact that the researcher attempts to understand people in terms of their own definition of the world. Silverman (2000:1) notes that for researchers who are concerned with exploring people’s life histories or everyday behaviour, the qualitative method is the preferred choice.

Survey research is the most appropriate means for making inferences about a large group of people from data drawn on a relatively small number of individuals from that group. The basic aim of survey research is to describe and explain statistically the variability of certain features of the population.

The principal research method used is a questionnaire. According to Marshall and Rossman (1994:95) researchers administer questionnaires to some sample of a population to learn about the distribution of characteristics, attitudes, or beliefs. Questionnaires entail several questions that have structured response categories and may include some that are open-ended. The questionnaire comprises a written set of questions that the respondent personally completes. Questionnaires are the most popular form of surveying the opinions and perceptions of individuals; they are usually distributed through mail, although they can be handed out physically to a sample population (Marshall and Rossman 1994: 95-96). For the purpose of this study, the research problem and the sub-problems will be measured using the survey method, the researcher designed an online questionnaire.

Chapters two to four represent the conceptual analysis of strategies in information literacy instruction. Chapter five is concerned with the operationalisation of the study. The focus is on the research design. The key qualitative analysis, results and findings are discussed in Chapter six. In the final Chapter seven, the summary, conclusions and recommendations based on the analysis are discussed.
1.5 Delimitations of the study

For the purpose of this study, the unit of analysis will be restricted to only academic libraries and information services that have an instruction librarian or a subject reference librarian that teaches information literacy. The research excludes any other librarian whose core competencies are not in library instruction and information literacy. The GAELIC (Gauteng and Environs Library Consortium) members were surveyed to limit the study to only nine academic libraries within the consortium. The member libraries surveyed comprise the following:
University of South Africa;
University of Limpopo;
Tshwane University of Technology;
University of Pretoria;
North-West University;
University of the Witwatersrand;
Vaal University of Technology;
University of Johannesburg;
Venda University of Science and Technology.

1.6 Chapter outline

Chapter two explores the challenges that instruction librarians must understand to be able to create a meaningful information literacy environment.

In Chapter three, attention will be on the pedagogy of information literacy instruction, the application of educational theories and methodologies to instruction. The principles of adult learning will be elaborated on. The characteristics of adult learners that instruction librarians can use to make an informed decision about the learners are discussed.

Chapter four is divided into sections. The first section examines course design in relation to conceptual mapping. The use of different media formats to facilitate learning is discussed. The second section explores the fundamental dimensions of collaborative relationship between academic departments, instructional designers and librarians from other institutions.

Chapter five explains the research design used in the empirical investigation.
Chapter six presents the statistical analysis and findings of the research results and the discussion. The summary, conclusions and recommendations emanating from the research findings are discussed in Chapter seven.
CHAPTER 2

IMPACT AND PERCEPTUAL VALUE OF INFORMATION LITERACY SKILLS INSTRUCTION: STUDENTS PERCEPTIONS AND INSTRUCTION LIBRARIANS CHALLENGES

2.1 Introduction

This chapter examines the information literacy learning levels of students and their preconceptions of information literacy instruction activities. The academic library’s clients represent diverse age groups, cultures, abilities and languages. In addition, their information literacy skills, information-seeking behaviour, technological competence, research skills and learning styles vary widely. In this chapter, the sub-problem regarding the challenges instruction librarians must understand in order to create a meaningful information literacy environment will be discussed.

The first part of the chapter focuses on the factors that influence students’ attitudes and perceptions regarding library instruction. Consequently, student participation in information literacy instruction presents unique challenges for the instruction librarian. These challenges form the second part of the chapter.

2.2 Factors influencing students’ attitudes and perceptual value of information literacy instruction

2.2.1 What learners from disadvantaged backgrounds bring to an instruction session

The cumulative effect of growing up in a disadvantaged environment produces learners who do not resemble textbook children. Textbook children are those whom future teachers are trained to regard as normal (Haberman 1993:1). Library instructors’ expectations of learners are based on these textbook assumptions. In other words, how learners behave, think and perceive the world is based on a fixed assumption that there is a year-by-year growth analysis of what “normal” universal development is supposed to be like.

The important point is that it is naive to expect what is normal in one set of circumstances to be abnormal in another. Growing up in a disadvantaged background would not produce learners who resemble textbook models. According to Haberman (1993:2) these learners
are quite normal and are “making perfectly reasonable responses to those who raise them and to the life conditions under which they live and grow”.

2.2.2 Diverse user groups

McIntyre in (O’Hair and Odell 1993:ix) asserts that the student population of today is the most diverse, and teachers are responsible for classrooms that represent a rainbow of colours, languages, backgrounds and learning styles. Higher education in South Africa is responding to a changing political agenda, as epitomised by mergers (South Africa. Ministry of Education 2003: 91 - 92). Students are coming to libraries with a greater polarity of skills, making it difficult for instruction librarians to pitch information literacy sessions at the right level (Moore and Abson 2002:35). Academic libraries serve diverse user groups that include students of different ages, racial and ethnic groups, languages, religion, developmental stages, educational backgrounds and computer skills levels (Hope et al. 2001:16; Winfield and Manning 1992:182 - 183).

According to Winfield and Manning (1992:183), diversity in the face of academic students is two-fold: intergroup and individual differences. Intergroup differences are manifested in terms of socio-economic levels, racial, ethnic and language groups and physical ability. In addition to intergroup differences, within each particular learner group there are individual differences in learning rates, attitudes and motivation levels, which results in different achievement outcomes that instruction librarians must accommodate.

In addition to the traditional university, the contact institution with a distance learning mode has created another user, the remote user. The remote user has to connect with and use his or her library network from another town or country. With library resources being available through the library Web site, the boundaries between a distance learner and an on-campus user are blurred (Hope et al. 2001:17). Hope et al. further maintains that the changing market place requires new skills, and workers are obliged to keep up with these changes. Mature working adults are becoming interested in lifelong-learning and are enrolling at universities for retraining or skills enhancement.

2.2.3 Language and cultural barriers

South African institutions are attracting enrolments from foreign nationals, Southern African Developing Countries (SADC) nationals, and local learners, whose mother tongue is not
English. Most of these learners use English as a second or third language and have become a large segment of open distance learning and contact institutions. Academic libraries also serve distance learners, students with disabilities, academic and administrative staff, teaching assistants, adult learners and school leavers who all bring another set of needs and priorities (Hope et al. 2001:17 and The Research and Scholarship Committee of ACRL’s Instruction Section 2003:108).

Research (Conteh 2003:8) has shown that the inclusion of learners from diverse language and cultural backgrounds in the same information literacy instruction session, adds to the complexity of instruction and the risk of misunderstandings. The reason for learners attending library instruction sessions is to gain knowledge about the library resources and information sources, but this does not take place in a vacuum. Howze and Moore (2003:58) point out that the success or failure of the student to adapt depends heavily on the sensitivity of library staff to variables such as communication, learning styles and students’ previous experiences in libraries. Students from disadvantaged backgrounds have unique obstacles to overcome in order to navigate efficiently in academic libraries.

Allen in (Howze and Moore 2003:58) states that “librarians who work in higher education share an obligation to actively remove barriers to communication and learning”. For example, librarians do not write and provide a standard glossary of terms and translated material to help students understand library terminology, and to promote comfort for the student who uses the academic library for the first time.

According to Howze and Moore (2003:59), an effort should be made to improve communication as the library instruction process depends, to an extent on how the student views the world, including the library. Howze and Moore further assert that librarians should “educate” themselves to work efficiently with diverse students by presenting classes in their language and being sensitive to the students’ culture.

Aside from language barriers, there are cultural barriers, such as students' perceptions of libraries as study halls, their reluctance to ask for help, and the dynamics of shyness and relationships to authority. Gilton in (Howze and Moore 2003:59) conceptualised this dynamic as “culture shock, compounded by library anxiety”. A librarian, according to Gilton, should be aware of cultural nuances such as the meaning of a nod.
2.2.4 Library anxiety

According to Van Kampen (2004:28), the library anxiety phenomenon has been quantitatively measured by a number of researchers over the past decade, using the Library Anxiety Scale (LAS) developed by Sharon Bostick. Library anxiety is reported as a characteristic prevalent among undergraduate, graduate, masters and doctoral students. It is estimated that 95 percent of students engage in frequent academic procrastination because of library anxiety.

The first formalised study on library anxiety as a phenomenon was conducted by Melton in 1986 (Collins and Robin 2004:6) to assess college students’ perceptions regarding their initial library experiences. The findings revealed that students felt incompetent utilising library resources and that the size of the library was overwhelming. The other response was related to not knowing where things were, not knowing what to do, and not knowing how to begin the library research process. Melton theorised that library-anxious students avoid confronting their feelings of inadequacy by engaging in behaviours such as not asking questions about how to access library resources, and avoiding the library. Consequently, students limit their opportunities to develop appropriate library skills.

2.2.5 Research skills

The current concern is that students are fascinated by the Web. Even if they turn to scholarly electronic resources licensed by libraries, their search skills are poor and they are unable to distinguish appropriate from inappropriate resources for their assignments (Throll 2001:12 - 13).

Today’s learners, especially at undergraduate level, do not like to disclose the fact that they do not know something. They still feel as though they should not ask questions. Secondly, learners want everything to be delivered by the Web and in full text. Learners do not understand that there are different search tools and sources they can use besides “the Web”. Part of the goal of institutions of higher learning is to teach students to learn how to think differently. The experience students bring with web-based technology has not taught them how to do academic level research (TerHaar 2000:38).

Stroyan (2000:40) notes that it is difficult for learners “to discern the difference between what comes through an evaluated source and what comes [unevaluated] from the net”. Learners
need more help in mapping their way through the Web and sorting through it. The instruction librarian must provide a value-added service and help learners sort through their research needs. Thirdly, the traditional teaching style has changed, at either contact or open distance learning institutions. There is fewer lectures and class attendance. The method followed is that a problem is identified by the lecturer and the learners are given the responsibility to come up with solutions. This requires the learners to work together in teams. A lot of pedagogy is also interactive. The library is mainly seen as a social place where learners come and work together on projects.

Undergraduates, especially students from disadvantaged backgrounds, have very little experience of using a research library. They do not know what to expect, but as Kaufman (2004:41) asserts, “many of them come complete with the confidence that they can find anything that they ever want to know or need on the web”.

2.2.6 Technological competence and information-seeking skills

Academic institutions are embraced by students aged between 18 and 22 years of age. This is the generation whose parents invested in home computers, multimedia CD-ROMS / DVD, educational software and computer games for this learners, internet is the primary source of information. They feel more at home in the online environment. They have been brought up in a world of computers promising instant information (Herrington 1998:383; Hope et al. 2001:17; and Kibirige and DePalo 2001:286).

The learners are familiar and comfortable with computers, and these experiences, according to Hope et al. (2001:17) “form their expectations and preferences when they arrive at the library, as they prefer and expect full-text online information resources”. De Villiers (2001:3) extracts a profile of a typical generation X learner comprised of four main characteristics as compiled by Laidlaw (1998). The characteristics include, being independent and self-reliant, ‘technoliterate’, expectation of instant gratification and self-building. A description of these characteristics is given in Table 2.
Table 2: Characteristics of Generation X (taken from de Villiers 2001:3)

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Independent and self-reliant</td>
<td>• I like to do things my way, build my own meaning</td>
</tr>
<tr>
<td></td>
<td>• Give me the information, skills and tools, and let me get on with it</td>
</tr>
<tr>
<td></td>
<td>• Tell me why I need to learn something and what I will get out of it</td>
</tr>
<tr>
<td></td>
<td>• I need to know how I am doing</td>
</tr>
<tr>
<td>Technoliterate</td>
<td>• I am not afraid of technology</td>
</tr>
<tr>
<td></td>
<td>• I can cope with multiple sources of information at once</td>
</tr>
<tr>
<td></td>
<td>• Visuals appeal to me more than text</td>
</tr>
<tr>
<td></td>
<td>• I have five senses, and like to use them all</td>
</tr>
<tr>
<td>Expectation of instant gratification</td>
<td>• I need to be involved, to do it myself</td>
</tr>
<tr>
<td></td>
<td>• Give it to me straight and to the point</td>
</tr>
<tr>
<td></td>
<td>• If something does not interest me I will move on</td>
</tr>
<tr>
<td></td>
<td>• I am used to being entertained</td>
</tr>
<tr>
<td>Self-building</td>
<td>• I know I need to build my own security by constantly learning new skills</td>
</tr>
<tr>
<td></td>
<td>• Things are constantly changing so I need to keep abreast</td>
</tr>
<tr>
<td></td>
<td>• I can take responsibility for my own learning process</td>
</tr>
<tr>
<td></td>
<td>• I believe breadth of experience is just as important as depth</td>
</tr>
</tbody>
</table>

(Summarized from Laidlaw, 1998) in de Villiers (2001:3)
The description of tech-savvy and computer-literate students is only a partial picture. The library also serves and presents library instruction to students who have attended schools without computers in the classroom, or have no computer at home. Many of the users come from outside this high-tech generation. Comfort with computers, or lack thereof, exists as another layer in the diversity of the users and this poses a great challenge for instruction librarians. According to Hope et al. (2001:17) the emerging trends in information technology have brought into perspective the diversity of our user groups and have compelled librarians to consider their unique needs in the delivery of library instruction.

The issue of whether students are computer-literate or not is not of concern. The main challenge is increased user expectations. Students expect to find everything online and full-text. Even the less experienced internet searchers have high expectations of finding information easily and quickly. These expectations are unrealistic in the current hybrid information environment of diverse information media libraries find themselves in (Hope et al. 2001:18).

Students prefer online resources and to access electronic information resources from a distance. There is less face-to-face interaction with students in libraries at a time when the information landscape has become more complex and difficult to consult efficiently and effectively (Environmental Factors 1999:1). According to Hope et al. (2001:18) students have an incomplete understanding of the diverse information environment. Students often do not realise that some information can be found faster in traditional sources of information. When pressed for time, students tend to naturally value convenience over quality.

Students may be frustrated by their failed search efforts and make a mistake of not asking a librarian for assistance (Marcus and Beck 2003:33). Ross LaBaugh in (Herrington 1998:383) attributes students’ unwillingness to ask for assistance to the fact that “library users attribute much authority to information obtained from a computer, if it was created on a computer, exists in a computer, or come out of a computer, some will view it as more valid, up-to-date and credible than a print format version”. Students expect immediate feedback from interactive systems. They want the information now and are not interested in learning or reading, they just want to use the system “It is fast food for fast times” (Herrington 1998:383).

Another contributing factor to students’ unwillingness to ask for assistance is the degree to which students are expected to work independently. The goal of information literacy instruction
is to encourage and empower students to become independent learners. Consequently, Heckart in (Hope et al. 2001:18 - 19) notes that students working in a computerised research environment might also feel that they are supposed to solve their problems independently instead of asking a person for help. The assumption is that, if students work mostly on computers and in isolation, the inference they might make is that they need to succeed with the help of machines, and that asking for assistance will be regarded as evidence of incompetence.

2.2.7 Changes in the Technological Infrastructure

Equipment configurations and replacement cycles are perceived to influence library instruction and library use in particular. Throll (2001:15) questions: “why would students come to the library to retrieve electronic resources using obsolete equipment when their own computers are faster, better equipped to handle multimedia and loaded with all of the software they need to complete their assignments?” Most academic libraries do not have the computing infrastructure and restrict their public workstations to information retrieval tasks only. Students are referred elsewhere outside the library to do e-mail, word processing and programming.

2.2.8 Changes in “literary” habits

According to Throll (2001:12) the use of electronic library resources occurs outside of the library. Remote use of library resources means that users may be neither registered student nor affiliated members. Students turn to personal computers when they need to find information. They restrict their search queries to retrieving full-text electronic resources, regardless of whether the best material is available on the Web, as indicated by (Herrington 1998: 383 and Throll 2001: 12).

2.2.9 Changes in students and the curricula

Throll (2001:13) opines that “modern students’ behaviour leaves much to be desired”. The perception is that they read less and have less intellectual curiosity. Or they are too busy to explore and learn about what libraries have to offer. Students have no difficulty using the web-based catalogue, but they cannot find the resources they want on the shelf because they do not understand the classification system. The other factor might be that academic departments are assigning fewer projects that require use of library resources (Throll 2001:13 - 14).
Zabel (2004:19) regards as critical the notion that students do not make use of the library because their course work does not require them to do so. Zabel observes that students enrolled at academically challenging environments, where projects require them to integrate ideas and apply what they learned in class to other activities, are more likely to use library resources, consult a librarian and evaluate information. The postgraduate honours students and students enrolled in pre-professional programmes are more frequent library users than masters and doctoral level students and those majoring in business, mathematics, or science.

According to Zabel (2004:19) the basis for any meaningful instruction is the linkage between information literacy instruction and course work. Students regard library instruction as an isolated activity, unless they are required to apply what they have learned. The key is to deliver instruction that is directly applicable to students’ research projects. This requires a collaborative effort between the academic department and the instruction librarian (Zabel 2004:19 and Dewald 2003:33).

Dewald (2003:33) agrees with Zabel that library instruction can be most effective when librarians know what students’ research requirements are. This will enable them to be ready to respond to the student needs and initiate dialogue with the academic department about their expectations with regard to students’ research. Also, the growing interest in online courses and distance education eliminates students’ use of the library (Throll 2001:13 - 14).

In a survey undertaken to determine factors influencing distance education students’ use of information sources, Liu and Yang (2004:24) found that convenience was cited as the primary reason for choosing other information sources and not using the library. The concept of convenience in the survey involved interplay of various factors, both individual and environmental. The convenience phenomenon reflected the principle of least effort, which highlighted the students’ tendency to choose easily available information sources, in preference to pursuing higher-quality sources which required greater effort to use.

2.3 Instruction librarian fundamental challenges: focus on perspective and information literacy instruction session

The information literacy concept is seen perceived to prepare students for lifelong engagement
in an information literate community and in the general information society. What librarians seek in instruction sessions is to bring about learning in students. Learning implies a change from a previous behaviour to a different one, from a previous belief to a new one and from a previous way of thinking to a new one. This mindset places additional demands on instruction librarians as teachers. This teaching role provides them with an opportunity to demonstrate an information literacy approach to life. The challenge, therefore, is in the use of teaching methods and approaches that model information literacy practices (Hinchliffe 2002:95).

According to Hinchliffe (2002:95), the focus should be on:

• **What information do we need?**
  As teachers, instruction librarians need to understand who the students are, how they learn, what barriers and challenges they face and how prior experiences affect their attitudes and approaches to learning.

• **What strategies might help us locate the information we need?**
  Instruction librarians need to ask other instructors, institutional researchers, course designers, assessment officers, student counselling bureaux and the students themselves. This can be done formally or informally through literature reviews and conference attendance.

• **How can we best think about what we find?**
  Instruction librarians need to think carefully, cautiously and critically. They should identify answers, generate new questions, be reflective or action oriented, engage in public dialogue, write papers, present formally at conferences and campus teaching events, among others.

• **What should we do with the information we gather?**
  As teachers, instruction librarians must act publicly in the sense that their actions are taken in the presence of students.

• **What legal and ethical issues might concern us?**
  Legal and ethical issues concern anyone who seeks and uses information. Areas of concern would include the way information about specific individuals is gathered and used, and the legal issue of copyright (Hinchliffe 2002:95 - 96).
Information communication technology (ICT) has inducted the library into the electronic information age. However, models of information literacy instruction service delivery have not changed. Librarians cling desperately to the old ways; this manifests itself firstly, in the familiarity with specific tools and techniques, and secondly, the assumption that instruction librarians seem to know that library instruction is good for learners, whether the learners want it or not (Herrington 1998:382 - 383).

2.4 Behavioural changes: an instruction librarian challenge

Instruction librarians are faced with the challenge of undergoing cognitive and behavioural changes within themselves. These changes affect students’ perceptions of information literacy instruction and their performance in the information literacy session. Librarians have to alter their views regarding the lack of time for sessions, when designing content for information literacy programmes (Nations-Johnson 1993:142).


2.4.1 Facilitation role in culturally diverse instruction sessions

Hadaway et al. (1993:61 - 62) maintain that instruction librarians as teachers are human beings who bring their cultural perspectives, prejudices, stereotypes, misconceptions, values, hopes and dreams to the information literacy instruction session. Hadaway et al. caution that values and perspectives may mediate and influence the way messages are communicated and perceived by the learners. Instruction librarians must examine their own backgrounds and experiences to determine what values and attitudes they may bring into the instruction session and also to realise that “their way” is not the only way when facilitating in a culturally diverse environment. Conteh (1993:2) agrees with Hadaway et al., and is of the opinion that, as members of social and cultural groups, our attitudes and preferences contribute to the theories
which we bring to the instruction role.

2.4.2 Instructional implications of language

Ethnic and linguistic diversity is already a dominant feature of academic institutions. Instruction librarians must examine and challenge the attitudes, values and beliefs that drive their current practices with diverse students. The following questions must be asked, for example: what attitudes do instruction librarians have towards particular languages and toward speakers of those languages? What values do instruction librarians ascribe to their student’s bilingualism and to the use of primary and second language in instruction?

Library instruction must accommodate students’ language characteristics, including the language use patterns, language preferences and language proficiency. In the case of students whose primary language is not English, the instructor must use language flexibly in order to accommodate the students. Instruction librarians need to match the language of instruction to the proficiency characteristics of the students (Cloud 1993:62 - 64).

2.4.3 Instructional implications of culture

Cloud (1993:64) asserts that culture has various dimensions which affect students. There are surface or external dimensions that manifest in language, dress, customs and family composition. The deep structure or internal dimension is manifested in values, beliefs, attitudes and norms.

Trueba in (Cloud 1993:64) argues that cultural knowledge and cultural values are at the basis of reasoning, inferring and interpreting meanings, hence the academic environment and the organization of library instruction sessions “must acknowledge and respond to the cultures of its students in order to maximise participation in learning activities”. Students bring to the library instruction session diverse background experiences and knowledge bases, however, instruction librarians rarely investigate their students’ values, background knowledge and experience when shaping instruction. This drawback may be attributed to librarians’ training and library and information science curricula.

Instruction librarians need to understand the socio-cultural context of learning, so that they can
modify it for the benefit of the students they serve and to achieve maximum benefit from their teaching efforts (Cloud 1993:66). In addition to previous experiences, the belief systems and disciplinary traditions that students bring to academic institutions should be considered in library instruction activities, as they may have an impact on the learning process (de Jager and Nassimbeni 2003:108).

2.4.4 Reduce facilitator talk time

Nations-Johnson (1993:144) asserts that the average teacher’s time for talking occupies 75 percent of class time. In a study to assess learner performance during class dialogue sessions, it was observed that discussions, in which teacher talk time was reduced to approximately 50 percent, were more responsive to learner needs and more successful in directing discussion. Nations Johnson points out that the aim of responsive facilitation is to maintain a balance between observation, listening and responding to the learners.

2.4.5 Properly balance and sequence literal and figurative questions

The contact mode of delivering information literacy instruction session to 30 or more learners is much more demanding especially if responsive facilitation or discussion is used. Responsive facilitation requires exceptional effort from the instruction librarian (Nations-Johnson 1993:150).

Nations-Johnson's (1993:145) survey report indicates that “if students comprehend literal information first, they can better respond to figurative questions”. Literal figurative questions should be presented in a more balanced, carefully sequenced fashion. The instructor must also refine his or her question-asking technique.

2.4.6 Eliminate facilitator and learner interruption

Nations-Johnson (1993: 145 - 146) maintains that an important condition for successful dialogue is the observance of dialogue protocol, which prohibits verbal interruptions. Interruption by both facilitator and learner can become intrusive. Facilitators should become a model of appropriate turn-taking. Facilitators must make a conscious and conscientious effort to listen, and allow learners to complete their thoughts before speaking.
2.4.7 Refine question-asking technique

- Rephrase questions: when learners are confused during the instruction session, the facilitator must rephrase questions, rather than simply repeating them.

- Pause (wait time): It is important for the facilitator to pause before, between and after questions. The pausing process enhances the facilitator’s ability to formulate questions, and gives the learners time to comprehend the content of questions and time to respond. Pausing gives the student the impression that their participation during the session is valued and also that their own participation is regarded more positively (Nations-Johnson 1993:146).

2.4.8 Learn to assist performance

The facilitator needs to identify the learner’s information literacy needs, assist the performance of learners who did not understand and solicit the help of learners who did understand to assist their peers. The development of responsive facilitation techniques, including the ability to assist performance and to conceptually connect learner and facilitator turns, is of benefit to both parties as individuals and members of a group (Nations-Johnson 1993:147 - 149).

2.4.9 Focus on reactive and proactive training

The information-seeking culture in academic libraries is such that the walk-in reference service has diminished, while the virtual traffic to the library’s online resources is increasing. Instruction librarians need to provide both online and in-person instruction in search techniques, web evaluation, and the best resources for specific subjects. Web-based teaching modules and interactive tutorials must be designed to match today’s learner study habits (Tenopir 2003:36). These trends call for an aggressive information literacy teaching programme, which may take the form of ether a reactive training programme or a proactive training programme approach, which can be described as follows:

- Reactive training programme: the instruction librarian invites the academic department to contact the library to make arrangements for a lecture or hands-on presentation.
- Proactive information literacy training programme is where the instruction librarian takes the
initiative to develop and aggressively promote what the library believe is essential for learners to know in order to be information literate.

A study conducted by Ferguson in (Tenopir 2003:36), it was found that approximately 45 percent of academic libraries provide reactive information literacy instruction and only 15 percent provide proactive training. The 15 percent for proactive training is attributed to the fact that such a programme requires both a library that is - and librarians who are - tool literate; resource literate; research literate; publishing literate; emerging - technology literate and critically literate. Given the South African scenario, a number of academic libraries would actually measure up to these criteria.

2.4.10 Focus on library instruction presentation formats: lecture, online tutorial and hands-on instruction

Teaching in an online environment is a relatively new experience for both instructors and learners. Instruction librarians are interested in methods of teaching that work best with students, especially in an electronic classroom or computer laboratory, so as to encourage active learning.

The three formats normally used in library instruction are:

- the lecture format, which consists of a scripted lecture delivered by an instructor;
- the online tutorial format consists of a scripted computer slide format delivered online to the user’s computer desktop; and
- the guided hands-on format is characterized by its emphasis on active learning and user participation.

With an electronic format combining lecture and hands-on presentations during instruction, instruction librarians still face the challenge of the diversity of skills and differences in learning preferences (that is, active versus passive learners) in the classroom. The instructor finds it difficult to keep the entire class at the same pace and interested in a hands-on presentation or lecture. The scenario is that technically skilled students get bored waiting for the less technical students struggling with mouse navigation. To pass time, technically skilled students tend to read their e-mails, surf the Web, or distract their neighbour and interrupt the instructor requiring
individual attention, while the less technically skilled students have difficulty keeping up, experience frustration and become discouraged in the process (Cudiner and Harmon 2001:49 - 51).

Both the online tutorial and the guided hands-on methods have an active learning component. The lecture format is almost exclusively based on either format, as noted by Tomaiuolo in (Cudiner and Harmon 2001:52). Where the lecture format is used as a training method there is a higher retention of concepts. By contrast, the online tutorial and guided hands-on lead to a higher retention of mechanical skills.

In a study conducted to determine how library instruction with hands-on electronic searching experiences influences college students’ self-efficiency in electronic information searching, it was found that students rely exclusively on either presentation format (Ren 2000:323). Results indicated that self-efficiency; the belief in one’s own capability to perform specific activities can be enhanced through library instruction with the combination of hands-on approach to the traditional lecture method. Consequently the hands-on approach to instruction requires more resources and instructor’s time for coaching. However, the combination of presentation methods is seen as a worthy investment as it would encourage students to adopt self-reliant search behaviours; develop a positive attitude and a strong motivation for students to continue to learn and practice their skills on their own (Ren 2000:323 - 327).

2.4.11 Focus on motivation

The instruction librarian is faced with the challenge to motivate students during instruction. The instructor’s knowledge and understanding of what motivates students and how they learn, is essential to teaching critical thinking skills to library users. Information literacy skills instruction does not only help students acquire the research skills. It also stimulates intellectual curiosity, encourages information-seeking and exploration behaviours and promotes a passion for lifelong learning. This can be achieved through the use of active learning strategies during instruction (Small et al. 2004:97 - 98).

In a study conducted by Small et al. (2004:98) to explore the use of motivational strategies in instruction, the following observation was made:
• attention-gaining strategies such as variety, surprise and novelty were effective in generating interest and preventing learner boredom;
• instructional technologies that did not capture student’s attention and were not directly relevant to the content and goals of the instruction, promoted learner boredom; and
• students perceived their instructors to be the primary source of their learning interest and boredom. The factors students considered to cause learning boredom were a dry, monotone presentation style; repetition of information students already knew; the presentation of irrelevant information; and a lack of variety of teaching methods.

Small et al. (2004:98) maintain that for instructors to stimulate student motivation, active learning strategies must be included in the instruction process to facilitate student participation and interaction.

2.4.12 Focus on setting the tone

Student anxieties about using the library, as well as the instruction librarian’s teaching anxieties, play a role in the success or failure of the information literacy session. Instruction librarians should be aware of these anxieties and attitudes students bring to the information literacy session. The students’ attitude toward library instruction is related to the perceived interest, enthusiasm and support of the instructor. An effective approach to setting the tone for instruction involves dressing in a professional manner, being organised and practising the presentation. What is important prior to and during class time, is moulding a positive attitude about libraries and librarians. The training facility, handouts and materials needed for instruction, must be prepared in advance. Contact and body language must be positive. Contact with students and the display of enthusiasm about the subject is perceived to carry the students along during instruction. “Setting the tone can mean the difference between a successful information literacy session and the information literacy session from hell!” (Oswald and Turnage 2000:347 - 350)

2.4.13 Focus on student concerns

Information literacy instruction should begin and end with student concerns. Instructors must make an effort to focus on topics that mean something to the students. Students learn research better within meaningful contexts. Rather than assigning a generic topic where students will
practice a skill in finding information on the topic, but experience little meaningful learning because they do not understand how the issue relate to the larger world, instruction librarians must take time to understand students, as student’s issues are real-world issues( Ward 2001:923).

2.4.14 Focus on teaching to challenge the unquestioned

Students often do not question the way the world works and how to recognise their relationship to it. They tend to fail to find a meaningful reason to participate. This assumption denies students their responsibility in a democracy that requires citizens who can critically evaluate both their information and their sources of information. Students are not information literate if they simply accept at face value the news they receive in the media or find on the Web. The conception of information literacy instruction must be focussed on critical thinking. An opportunity during instruction must be provided to generate meaningful connections between the research topic and the lives of students or help students question the nature of discourse that takes place (Ward 2001:924).

2.4.15 Focus on relevance

Heery and Morgan in (Stubley 2002:34) assert the need for relevance in library instruction sessions. They emphasise that “if it is the perception of students that such a programme will not help, then they will vote with their feet”. According to Stubley (2002:34) relevance is easier to achieve in subject-oriented sessions and possibilities do exist for improving relevance when taking the generic approach. The notion that library instruction has to be timely, relevant and engage the advent of the virtual leaning environment (VLE) has to be promoted during instruction (Moore and Abson 2002:34).

2.4.16 Focus on “point of need”

The problem with the current methods of library instruction is that the learner is unable to transfer knowledge gained from one library instruction session to the needs of other course / module assignments. Systems and modules are designed in a generic, one-size-fits-all format and learners have difficulty recognising the relevance of library instruction. There is the challenge of ensuring that information skills teaching is delivered to students at the point in their
studies that will be most of use to them (Herrington 1998:383 and Moore and Abson 2002:35). Instruction must be provided at the time learners begin to look and need to use the information.

Students want to learn in the context of the subject. Instruction librarians cannot do that, but can help the faculty prepare for that by integrating the library into coursework.

2.4.17 Focus on building information literacy skills into the system

Information literacy concepts should be built into the system so that users can select and evaluate information independently. Information sources of all formats should be linked by subject and the user guided from general to specific sources. Basic instruction on search techniques, including Boolean searching, should be made available on the library system (Herrington 1998:384).

2.4.18 Focus on the utility of search engines in accessing digital collections in and outside the library

The digital library development has mandated changes in the nature of conventional library instruction, as it created opportunities to search for historical material in electronic format. The instruction sessions include also information about the digital library collections. Kibirige and DePalo (2001:287) maintain that the “digitized multimedia must be clearly understood before the end-user accesses it”. Even though learners have the basic computer access skills before they come to the library, an information seeker in a digital library environment needs a lot of initial training and constant hand-holding.

According to Hope et al. (2001:21), students need to learn to look for the scope of the resources available to them, and also understand the differences between web-based databases and the public Web. These trends pose a challenge for an instruction librarian to assume the role of instructor, but this may mean instruction in computer proficiency as well as in information-seeking habits. The digital library user needs to be trained on the requisite equipment needed for accessing digital collections. Hardware, software and telecommunications characteristics must be clearly explained to minimize user frustration. The learner will be frustrated when the home or office equipment does not have enough memory or storage on the hard disk to manipulate an animated graphic vital to his or her work.
The instruction function must also include an analysis of the nature of digital resources so that the learners understand the environment they are functioning in. The instruction preparation must be proactive and anticipate some of the learner questions by asking why, how or when? Questions to anticipate would include issues such as how digital resources differ in format, for example, plain text, still images and animated images.

Online tutorials are used as another avenue to provide guidance to the digital library user. Instruction librarians have, firstly, the challenge of bridging the gap between synchronous learning associated with the traditional models and methods of information transfer and developing ways to bring these synchronous learning features into the asynchronous learning environment associated with the digital age. Secondly, with instruction in digital resources, instruction coordinators must consider whether there are enough internet terminals in the library to handle the increase in use, as learners are encouraged to view multimedia digital collections (Hope et al. 2001:20 and Kibirige and DePalo 2001:281 - 292).

2.4.19 Focus on library system so easy to use that library instruction is not used as a remedial response

Herrington (1998:383) is of the opinion that instruction librarians should transfer some energy away from teaching, to become directly involved with information systems personnel in developing user-friendly interfaces and the content of online subject guides, which gives users a feeling of control. Complicated systems place a strain on the users and the library staff. Library systems should focus on the many sources of information available and not on the mechanics of using the system. Users will abandon a programme rather than spend time reading instructions or a manual or attending a class.

Library instruction should not be used as a remedial response to the library system’s failures or deficiencies - the system must enable the user to gain access to information (Herrington 1998:383).

2.4.20 Focus on user independence

According to Herrington (1998:383) the objective of library instruction as proclaimed by the
American Library Association (ALA) Conference of 1881, was that of user independence and self-help.

Instruction librarians need to focus on helping the user become more independent in locating and retrieving information. Self-help is regarded as the preferred method of instruction over handouts and workshops.

2.4.21 Focus on outreach projects

To enhance the learning experiences of all students and the goal of making the library less intimidating to students just out of high school, instruction librarians must engage in outreach efforts that, according to Kraemer et al. (2003:6) “reach patrons outside of the library - wherever they are accessing, evaluating or manipulating information”.

The American Library Association (ALA) defines outreach as “any program of activities initiated and designed to meet the information needs of an unserved or inadequately served target group” (Johnson et al. 2003:20). The unserved concept implies that users lack adequate access or orientation to library services and resources (Johnson et al. 2003:24).

In the academic context, outreach focuses on groups such as high school learners, community users, international students (SADC) and distance learners (Johnson et al. 2003:20). Effective outreach takes into account the information needs of the student as well as the potential barriers that may inhibit learning for example students with special needs such as physical and learning disabilities require individual services and support that they cannot obtain in a one-shot library instruction session.

The library outreach activity could include a liaison relationship between librarians and academic departments. The purpose of the liaison programme is to facilitate communication, promote library instruction and other library services and resources, and to expand the library’s instructional efforts through the development of subject-based instruction sessions for individual courses (Johnson et al. 2003:21 and Kraemer et al. 2003:7).

Another outreach initiative should focus on first year and honours students. It is crucial to target these students for library orientation and instruction to ensure student retention and success.
Student residence halls can be used to connect with students living on campus in a fun and casual way. The aim is that, the next time a student has a project, they will turn to a librarian before they turn to the internet (Kraemer et al. 2003:5 - 16 and Reeves et al. 2003:57 - 67).

Library outreach initiatives could take different forms such as library exhibits, book talks, multimedia kiosks and teaching assistant workshops. The teaching assistant is often the immediate contact an undergraduate has with a department or faculty (Fabian et al. 2003:44 - 55).

2.5 Summary

In this chapter, the forces that influence and have an impact on the student’s attitudes and misconceptions regarding their participation in information literacy instruction were discussed.

The students’ preconceptions toward library instruction pose a number of fundamental challenges for instruction librarians. The challenges were discussed, and ranged from the process of self-introspection with regard to the approach and teaching methods used, to facilitating the process of assisting students to become lifelong learners, and creating a positive learning environment in academic libraries. It is vital that instruction librarians understand how students, as newcomers to an academic library, see the whole academic experience.

In the next chapter, the focus is on the teaching theories, the characteristics of adult learners and, the adult learning principles that must be incorporated in the information literacy instruction programme.
CHAPTER 3

PRINCIPLES OF ADULT LEARNING AND LEARNING THEORIES IN INFORMATION LITERACY SKILLS INSTRUCTION

Instruction librarians as teachers of information literacy skills are not trained educators and therefore lack the necessary knowledge and skill in understanding the context and processes in which learning takes place. This chapter seeks to identify firstly, the learning theories that underlie the principles and techniques that influence the way adults learn. Secondly, the characteristics of adult learners are explored to assist the instruction librarian to make an informed decision about the learners. Thirdly and finally, it explores the aspects of adult learning that must be incorporated into the information literacy skills sessions to facilitate the learning environment.

Morrison et al. (2003:214) assert that to understand the way students learn has been of concern to educator’s intent in developing an effective teaching strategy. In their research to identify the learning styles of marketing students, the findings showed that students are likely to have sensate, visual, and sequential learning styles. Furthermore, on-campus students were found to be active learners, and distance students to be reflective learners.

The research findings on the learning styles of students have demonstrated that when the teaching style is compatible with students’ learning style, students retain information longer, apply information more effectively, have a positive attitude to their subjects, and are greater achievers (Morrison et al. 2003:208).

3.1 Learning theories

Quam (1998:71) and Merriam (2001:5) argue that for the past three decades scholars tried to determine whether the way adults learn is any different from the way children learn. The term andragogy emerged out of the pursuit by Malcolm Knowles in 1968 of trying to define the field of adult education as separate from other areas of education. The concept andragogy, which relates to adult learners (Briggs and Sommefeldt 2003: 32) is defined as the “art and science of helping adults learn” (Quam 1998:71 and Merriam 2001:5). Related term pedagogy - the
science of how children learn - has its roots in Greek and comes from *pais*, child, and *agogos*, leader. The literal meaning of pedagogy is to lead a child, based on the story of a Greek servant responsible for walking the master’s children to school. Andragogy has similar roots from Greek, *andros* meaning man or adult (Briggs and Sommefeldt 2003: 32).

According to Merriam (2001:5) and Briggs and Sommefeldt (2003:32) the concept of andragogy is being debated and criticised based on the assumption that it is a separate field from other areas of education. The distinctions made in andragogy are perceived as artificial, as many of the methods identified may be interchangeable with pedagogy depending on which context it is used. Quam (1998:71) argues that “agreement exists that the major theories do not differ drastically between how children and adults learn”. This phenomenon is illustrated by a perusal of the respective characteristics of the pedagogical and andragogical approaches to learning (Table 3-1) as depicted by Briggs and Sommefeldt (2003:33).
<table>
<thead>
<tr>
<th></th>
<th>Pedagogical</th>
<th>Andragogical</th>
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<tbody>
<tr>
<td>The learner</td>
<td>• The learner is dependent on the instructor for learning</td>
<td>• The learner is self-directed</td>
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<tr>
<td></td>
<td>• The teacher / instructor assumes full responsibility for what is taught</td>
<td>• The learner is responsible for his or her own learning</td>
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<tr>
<td></td>
<td>and how it is learned</td>
<td>• Self-evaluation is characteristic of this approach</td>
</tr>
<tr>
<td></td>
<td>• The teacher / instructor evaluates learning</td>
<td></td>
</tr>
<tr>
<td>Role of the learner’s</td>
<td>• The learner comes to the activity with little experience that could be</td>
<td>• Learner brings a greater volume and quality of experience</td>
</tr>
<tr>
<td>experience</td>
<td>tapped as a resource for learning</td>
<td>• Adults are the richest resources for one another</td>
</tr>
<tr>
<td></td>
<td>• The experience of the instructor is what counts</td>
<td>• Different experiences assure diversity in groups of adults</td>
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<td></td>
<td></td>
<td>• Experience becomes the source of self-identity</td>
</tr>
<tr>
<td>Readiness to learn</td>
<td>• Students are told what they have to learn in order to advance to the</td>
<td>• Any change is likely to trigger a readiness to learn</td>
</tr>
<tr>
<td></td>
<td>next level of mastery</td>
<td>• The need to know in order to perform more effectively in some aspect of</td>
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<tr>
<td></td>
<td></td>
<td>one’s life</td>
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<td></td>
<td></td>
<td>• Ability to assess gaps between where one is now and where one wants and</td>
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<td></td>
<td></td>
<td>needs to be</td>
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<tr>
<td>Orientation to learning</td>
<td>• Learning as a process of acquiring prescribed subject matter</td>
<td>• Learners want to perform a task, solve a problem, live in a more satisfied</td>
</tr>
<tr>
<td></td>
<td>• Content units are sequenced according to the logic of the subject matter</td>
<td>way</td>
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<tr>
<td></td>
<td></td>
<td>• Must have relevance to these tasks</td>
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<td></td>
<td></td>
<td>• Learning is organised around life / work situations rather than subject-</td>
</tr>
<tr>
<td></td>
<td></td>
<td>matter units</td>
</tr>
<tr>
<td>Motivation for learning</td>
<td>• Primarily motivated by external pressures, competition for grades and the</td>
<td>• Internal motivators: self-esteem, recognition, better quality of life,</td>
</tr>
<tr>
<td></td>
<td>consequences of failure</td>
<td>self-confidence, self-actualisation</td>
</tr>
</tbody>
</table>
Quam (1998:72) notes that a theory of adult learning enables the instructor to firstly understand how learning occurs and secondly, to assist the instructor to arrange for learning to take place. Three commonly recognized major learning theories are classified as stimulus-response (S-R), cognitive, and mental learning theory. A brief description of each follows.

• **The Stimulus-response (S-R) theory**: this is a conditioned behaviour where the learner reacts by giving the desired response to appropriate stimuli. Conditioning is enhanced by reinforcing the desired behaviour. An example of this type of learning is Pavlov’s dogs who reacted to the sound of a bell by salivating even when no food was available. The dogs were conditioned to respond in expectation of a reward.

• **Cognitive learning theory**: this type of learning refers to individuals gaining new insights or knowledge. The key to cognitive learning is that an individual must be able to retrieve the information whenever they need to access it. The individual becomes a storehouse of information. This learning process is paralleled to inputting data into a computer, and retrieving it when needed.

• **Mental learning theory**: this kind of learning occurs when the mind is developed by exercising it, or simply using the mind. The analogy of how athletes train their muscles is used as an example in understanding how this method of learning takes place (Quam 1998:72).

### 3.2 The concept “adult learner”

According to Gravett (2001:6) the concept of adult is understood differently by different societies. The “status of an adult is generally ascribed to persons based on, first, the extent to which they fulfil the social role that is typically assigned to an adult in a society and, secondly on the extent to which they assume responsibility for their own lives and livelihoods”. The adult learner can be defined as a person with responsibilities or life tasks, whose life situation is characterised by multiple roles, such as worker, employer, spouse, parent, etc and participates in educational activities.

Gravett (2001:7) cautions that there is no such thing as a “typical” adult learner. An adult who engages in further studies at a university and, a non-literate adult who is involved in basic
education both meet the criteria for adult learners. Furthermore, Training Post (2004:2) maintains that adults, as students, have some common characteristics and, these are discussed in detail later in the chapter.

3.2.1 Understanding adult learners

Understanding adult learners is not an easy task as there are many factors that have an influence on adult learners. This is evident from Malcom Knowles’ term “androgogy” that emerged from his effort to group adult learners from children as learners (Quam 1998:70). Adult learners have different learning styles. These learning styles reflect personal characteristics, attitudes toward learning, past experience and how learners have learned to learn. Furthermore, adult learners should be viewed in light of difference in culture, occupation, personality, physique, age, level of development, experience, intellectual ability, academic progress, motivation and personal circumstances (Mkhwanazi 2001:48).

3.2.2 Types of adult learners

Endorf and McNeff (2001:20) divide adult learners into five groups, namely:

- confident, pragmatic, goal-orientated learners;
- affective learners;
- learners-in-transition;
- integrated learners, and
- risk takers

Each group is explained separately below:

- **Pragmatic goal oriented learners**
  These are self-sufficient learners. They are confident and eager to work with peers in an academic setting. In this type, a support system of peers within the social setting is unnecessary. Learners are introspective and self-directed. Realising personal goals is a top priority; therefore these learners are in competition with themselves, not their peers. They are not sidetracked in pursuing their goals. Their learning style is interactive and experiential. They appreciate having their ideas heard, and they appreciate the utility and purposes of learning (Endorf and McNeff 2001:21).
• **Affective learners**
  These learners respond to the affective elements of learning. They enjoy being with other adults who share similar values. They do not like to question the instructor. To them an instructor is a source of knowledge, wisdom, and expertise. Education does not need to be job-related for these learners. These learners are willing to take responsibility for their education and are excited about the learning environment (Endorf and McNeff 2001:21).

• **Learners-in-transition**
  These learners are in a transition state. They are not developing independence as learners. They have not yet fully developed their educational goals. These learners are interested in knowing how to use their education and how to connect their experience with what they are learning in class. They are pragmatic in their learning approach to recognising their educational progress. They enjoy a sense of equality with their instructors. These learners like discussion and interactive learning and they do not want to be fed with information. Furthermore, they do not regard instructors as experts in all areas (Endorf and McNeff 2001:21).

• **Integrated learners**
  The perception of these learners is that life and career are integrated rather than separate entities. They are interested in personal success and enjoy accomplishment of new learning. These learners are relaxed, stimulated and satisfied in their association with other adult learners. They feel in control and have a sense of freedom as a result of knowing the techniques of academic success. They understand learning as their own personal responsibility and establish relationships with instructors.

Integrated learners are truly self-directed adults whose educational plans fit into the total picture of their lives. They like to be recognised as meaningful contributors to the process of education; furthermore, these learners will not be satisfied as mere receivers of information (Endorf and McNeff 2001:22).

• **Risk takers**
  These learners are willing to take risks in order to accomplish educational goals. They enjoy new ventures and are willing to work hard to meet the goals set by the institution. Risk
takers enjoy the relationship with the instructors rather than rely on support groups. They are sufficiently self-confident to “go it alone” and they look to instructors for learning and guidance (Endorf and McNeff 2001:22).

3.3 Adult learning principles (ALP’s)

Quam (1998:72) asserts that “learning principles are the underpinnings of learning theories”. An awareness of the learning principles determines the impact the instructor has on the learning process and, understanding the principles helps to explain to the instructor why certain strategies are more effective in the classroom than others. The incorporation of the learning principles into the instruction session affords learners the learning conditions that promote and foster growth and development.

Training Post (2004:1) notes that adult learning principles “provide guidance for tutors and staff who teach literacy students”. These principles suggest a learning environment that focuses on the student’s personal goals builds on previous life experiences and promotes positive self-esteem and self-worth, and adult students are treated as active participants.

3.3.1 Learning principle - Adults are people with years of experience and a wealth of information

The instructor has to build on new learning by integrating it with past learning. Quam (1998:72) concurs with Gravett (2001:8) that adults bring into the educational environment practical life and work experiences that contribute greatly to the direction and focus of their learning. The key is to connect the unfamiliar to the familiar. Training Post (2004:2) asserts that the teacher should call upon and integrate these rich work and life experience into the learning environment. Principles of Adult Learners (2004:1) also maintain that students’ experiences can be resources to the teacher and to each other.

3.3.2 Learning principle - Recognise motivation as a driving force that encourages adults to learn

Motivation is regarded as an internal force that comes from the learner to promote action. Adults seek learning to achieve goals for the activity provided and for the sake of learning. The
instructor must assess the specific learning needs of the intended audience before the class or at the beginning of the session. The instructor must adopt a habit of summarising frequently to increase retention and recall (Principles of Adult Learners 2004:1).

Adult learners are perceived to be very self-motivated, as they often spend their own money, time and resources to learn a new skill (Training Post 2004:2). Quam (1998:72) maintains that adults enter a learning situation voluntarily and are motivated by a variety of reasons namely,

- **social reasons** - adults perceive learning to fulfil a need for personal associations and friendships and the development of a sense of belonging;
- **external expectations** - an employer or work situation, culture or religion may impose to the learner to participate in a learning situation;
- **social welfare** - adults learn to prepare themselves to understand their community problems and devise solutions to the problems;
- **professional advancement** - adults learn with the intention of applying and immediately practising what they have learned;
- **escape** - adults learn as a way to add variety to their routine life and to introduce change in their lives;
- **intellectual development** - adults enjoy learning because they find it stimulating. According to Quam (1998:73) “education satisfies and soothes an inquiring mind”; and
- **personal fulfilment** - adults perceive education to make them happy and develop a strong sense of well-being.

3.3.3 **Learning principle - Adults have pride**

The trainer needs to recognise that adults base their self-concept on success or failure. Adults function best with immediate feedback and positive reinforcement. Thus, adults are reluctant to take risks and it is essential to develop mutual trust and respect. The instructor must support students as individuals, as their self-esteem and ego are at risk in an environment that is not perceived as safe or supportive (Principles of Adult Learners 2004:1)
3.3.4  **Learning principle - Adults are people whose style and pace of learning constantly changes**

The instructor must provide a physically and psychologically comfortable environment for adult learning. Adults experience physiological changes that may distract learning. To reduce distractions, learning should provide opportunities for learners to be physically active, have frequent breaks; good lighting and comfortable seating should be provided. Frequent breaks in an interactive teaching situation can be spaced 60 - 90 minutes apart, whereas during a lecture, a short break every 45 - 60 minutes is sufficient. A two minute stretch break must be incorporated (Principles of Adult Learners 2004:1). Adult learners have short attention spans. They need a constant, changing atmosphere to maintain their attention (Suzik 1999:76, Eaton 2003:6).

The use of a variety of teaching strategies such as small group problem solving and discussion, use of auditory, visual, tactile and participatory teaching methods is important. Most adults prefer teaching methods other than lecture. Reaction time and speed of learning may be slow, but the ability to learn is not impaired by age (Principles of Adult Learners 2004:1). The conducive adult learning environment is characterised by freedom of expression, mutual respect, acceptance of differences and support by the instructor to reduce barriers, eliminate threats, and convey friendliness.

Training Post (2004:2) maintains that adult students need to feel and be respected. The instructor must ensure that their needs are being met in a variety of ways, in a professional manner. The instructor must take into account differences in style, time, types and pace of learning (Principles of Adult Learners 2004:1).

3.3.5  **Learning principle - Adults relate new knowledge and information to previously learned information and experiences**

Trainers must provide adults with immediate opportunities to practice and apply new skills and knowledge. Instructors must ensure that the learning content is relevant so that learners can perceive the content as meeting their needs and to be meaningful and important. Material outside of the context of participants’ experiences and knowledge becomes meaningless.
3.3.6  **Learning principle - Individual differences among people increase with age**

Instructors must be aware of adult development stages and the demand for different skills as adults encounter the different stages. Adults are perceived to seek education as a response to coping with life changing events.

3.3.7  **Learning principle - Adults tend to have a problem-centred orientation to learning**

The educational model has shifted to a student-centred model from the traditional teacher-centred model. The learning environment is a shared relationship between teacher and learner where objectives, needs assessment and evaluation of outcomes are mutually agreed on and learning contracts negotiated (Eaton 2003:1). Adults have a need to be self-directing. The instructor must emphasise how learning can be applied in a practical setting. This can be achieved through use of case studies, problem solving groups and participatory activities to enhance learning (Principles of Adult Learners 2004:2).

3.3.8  **Learning principle - Adults possess a desire to become self-directed**

Adult students want to actively participate in all aspects of their learning situations. They do not want to be passive recipients, they find learning challenging when they participate both physically and mentally. Adult learning has to be enhanced by two-way communication. Adults take initiative in designing learning experiences, and are prepared to become lifelong learners (Quam 1998:72 - 75). Goodlad (2004:1) maintains that the instructor must engage the students in a process of mutual inquiry.

3.3.9  **Learning principle - Adults have learning barriers**

When adults are in a learning environment, they tend to think about the work that is piling up on their desks and the emergencies going on at work while they are not there (Suzik 1999:76). The instructor can eliminate these barriers by focussing on the actual reasons why learners need to attend the class. A message of “what’s in it for me” (WIFM) must be conveyed to the adult learners (Suzik 1999:76).
3.3.10  *Praxis: action with reflection or learning by doing*

Praxis can be used in teaching knowledge, skills and attitudes as learners do something with the new knowledge, practice the new skills and attitudes, and reflect on what they have just done (Eaton 2003:6).

3.3.11  *Respect for learners as decision makers*

Adult learners desire to be subjects or decision makers and resist being treated as objects. Instructors need to be clear about the difference between suggestions (consultative voice) and decisions (deliberative voice) (Eaton 2003:6). This principle guides not only the design of learning and of learning tasks - it guides every aspect of the educator's encounters with adult learners. To be able to respect adult learners, instructors need to know about their context and situation. A learning needs assessment must be done with the learners prior to a session (Vella 2000:12).

3.3.12  *Sequence of content and reinforcement*

The learning tasks should be properly sequenced; from easy to difficult, and simple to complex. Reinforcement involves the repetition of facts, skills and attitudes in diverse, engaging and interesting ways until the skills are learned (Eaton 2003:6).

3.3.13  *Accountability - how do they know they know?*

This principle is a synthesis of all the previous principles. The teacher, planner, facilitator, or instructor is accountable to the participants for the design of the programme. The learners working in teams are accountable to each other. Teams of small groups provide the assurance of safety and shared responsibility (Eaton 2003:7 and Vella 2000:13).

3.4  *When can the adult learning principles be applied?*

The adult learning principles may be applied through the different teaching roles that the instructor may exhibit. Depending on the learning situation, the instructor will be involved in all or some of these teaching roles at different times namely,
• the expert role: transmits information about a subject to an audience;
• the planning role: designs or plans the learning or the learning environment;
• the instructor: guides or directs the learning situation often telling the student what to do;
• the facilitator: responds to the student's needs and lends guidance and support;
• resource person: provides materials and information to the students;
• the co-learner: learns along side the student, mutually plans the learning goals; and
• the model role: models or influences behaviour and values (Training Post 2004:5).

3.5 Active learning strategies

According to Quam (1998:79) “active learning is any method or technique that gets students to do something other than sit passively in the classroom”. Adult learners perform best when they are engaged physically and mentally by doing things and also thinking about what they are doing, being involved in a process of critical thinking. For adult learners, activity or action is the key to learning.

Scott (2003:31) and Gravett (2001:13) concur that adult learners bring a wide variety of prior knowledge and life experiences into the educational setting. Therefore, adult learning depends on the degree to which learners can generate connections between the new information they are trying to learn and the knowledge already organised in their memory. When the learner is given an opportunity to actively make connections and engage the material, the chances are greater for students to remember what they have learned and be able to access new information.

An active learning environment appeals to a diverse student group as it acknowledges students’ different learning styles and past experiences. Active learning provides students a chance to talk and listen, read, write and reflect using critical thinking skills of analysis, synthesis and evaluation. This activity facilitates the goal for learning to use and apply the information gained from the course (Quam 1998:80 - 81).

From the constructivist perspective, Gravett (2001:18) asserts that “learners are not passive beings that respond to stimuli, and that learning is not simply a process of acquiring knowledge that is stored in the brain for retrieval at a later stage. Learning is an active process of
constructing meaning and transforming understandings in interaction with the environment”. The student is perceived to be at the centre of the process. The instructor guides and facilitates the process by presenting the learning material in a way that would make the students interact with information, manipulate ideas, and incorporate this new information into their existing knowledge structures.

To incorporate active learning in the instruction session requires less emphasis on transmitting information to fostering or using techniques that promote participation. This is clarified by the active learning continuum taken from Quam (1998:80) as illustrated in Table 3-2.

Table 3-2  Active learning continuum (Quam 1998:80)

<table>
<thead>
<tr>
<th>Very passive</th>
<th>Somewhat passive</th>
<th>Somewhat active</th>
<th>Very active</th>
</tr>
</thead>
</table>
| • Listen in class  
| • Follow prepared notes  
| • Read | • Listen to guest speaker  
| | • View film  
| | • Take literal notes | • Paraphrase notes  
| | | • Write questions  
| | | • Respond to questions  
| | | • Watch demonstrations  
| | | • Take test  
| | | • Ask questions  
| | | • Take field trip | • Discuss (cases)  
| | | | • Debate  
| | | | • Role play  
| | | | • Conduct lab exercises  
| | | | • Use simulated patients

3.5.1 Overcoming barriers to learning

Active learning involves a change of mind set for both students and instructors, as they have a shared responsibility for the educational process. Therefore, students may experience some barriers that prevent them from being active participants. Gravett (2001:8) notes that “if adults’ experience is devalued or ignored, they may feel that they are being rejected as persons”. The adult learners’ fear of criticism affects their self confidence and ego. Criticism can be eliminated by practising respect and valuing ideas. Teachers, who do not promote participation and do most of the talking, are seen as overpowering and dominating. Dominance can be eliminated by introducing students to shared responsibilities. Content and activities must apply to real life experiences of students. This is essential for getting students interested. Students are eager to participate in a learning activity when they feel psychologically and physically comfortable and their status and ego are not threatened (Quam 1998:82 - 83).

3.5.2 Response opportunities
According to Quam (1998:84) it is imperative for teachers to develop skills in motivating students, asking effective questions, and providing response opportunities and giving appropriate responses to student comments. Response opportunities for students include:

- answering questions;
- giving opinions (good technique because there are no right or wrong opinions);
- speaking as a small group report;
- presenting a case; and
- reacting to feedback.

The key to success is for the instructor to practice these techniques. When the students and teachers need to give a positive response, there are different levels of responding:

- **Acknowledgement.** There is now evaluation of the idea or information. The response given indicates that the idea was heard.
- **Praise.** The student is rewarded by hearing that the idea presented contains useful, good or interesting information.
- **Restatement.** This response indicates that the information is important because it is being emphasised.
- **Probe.** The instructor seeks more information by saying, for example, “tell me more”
- **Redirect.** The teacher responds in a way that promotes interaction among students by asking another student to respond to or add to what the first student said.
- **Action.** Here the teacher responds that the idea suggested will be implemented. This technique is perceived to reward and encourage participation (Quam 1998:84 - 85).

### 3.5.3 Levels of participation

Quam (1998:85) identifies three levels at which students participate in an active learning environment:

- When students are in a position where they are ready to learn, they are perceived to have the instructors’ attention. Instructors at this level create opportunities for students to respond, hold students responsible for learning, keep students alert and ready to be active, and move around to hold the students attention. Moving around the instruction session
closes the distance so the learning environment becomes less sterile, more social and more personal.

• Once students are attentive, they are receptive. The instructor has to build the level of students’ interest, thereby striving to make the content relevant to the students’ needs. When students are interested, their motivation increases.
• The third and highest level is to develop students’ involvement by having them determine objectives, plan the learning, make decisions and evaluate learning.

3.5.4 Motivation

According to Quam (1998:86) “student motivation comes from within”. Instructors facilitate students to be motivated by dealing with their attitudes, detecting their needs, stimulating them through active learning, creating a change in effect, increasing their competence or skills towards mastery and making students aware of the positive results of their learning. This process affirms students and allows for further motivation.

Active learning is regarded a success when students demonstrate an improved mastery over the content and they can apply what they have learned. When there is greater retention of information and the session is livelier, attendance is increased and students ask more questions (Quam 1998:86).

3.6 Generalised characteristics of adult learners

3.6.1 The learners are adult by definition

According to Gravett (2001:8), there are three significant attributes of adulthood namely, autonomy, responsibility and self-determination. Adults have a self-concept of being responsible for their own lives and decisions, coupled with a need to be seen by others and treated by others as responsible human beings. However, some adults have been socialised to regard their role as learners as passive recipients of knowledge. These learners expect to be taught by an authoritarian, all-providing teacher. If the learners’ expectations are not addressed in some way, their frustration is expressed in hostile behaviour towards the instructor. Other learners who have not engaged in educational activities for a long time may experience a lack of confidence about their ability to learn and, therefore, demonstrate a high degree of dependency on the instructor. In some societies married women are not encouraged to develop some form
of independence and self-direction.

Gravett (2001:8) proposes that the ideal adult-teaching transaction must “accommodate the learners’ adult attributes, preferences and psychological needs, as well as the adult educator’s expertise and guidance”.

3.6.2 Adult learners bring accumulated life experience with them

According to Gravett (2001:8) the heterogeneous life experiences of adults have implications for teaching. Their life experience is linked intimately to an adult identity. To adults their experience defines who they are. If the experience adults bring to the learning environment is devalued or ignored, they may feel that they are being rejected as persons. Furthermore, the adults’ experience can serve as a rich resource for learning, especially for the adult learners themselves and for fellow learners.

Experience can be an obstacle to learning. Adults bring into the learning environment attitudes, convictions and thinking patterns that are already established and they may find it difficult to learn new ways of thinking and doing if these contradict their beliefs and experience (Gravett 2001:8).

Learners also bring prior educational experience and pre-set ideas of what it means to be a learner. Therefore, learners tend to believe they have no useful experience and insights to contribute. This requires the instructor to establish a cooperative learning environment where learners would be assisted to trust themselves and their co-learners as resources of learning (Gravett 2001:8 - 9).

3.6.3 Adults’ readiness to learn is linked to their life roles and life tasks

The reasons why adults participate in educational activities are complex. However, adults engage in learning if it can be linked to some circumstance in their “life-worlds problems”, challenges or needs arising from their social or vocational roles (life tasks). Adults want to be able to apply what they learn in their life-worlds and experience the immediate usefulness of new learning. Gravett (2001:9 - 10) cites a classic participation study conducted by Houle on the reasons why adults participate in learning activities. The study by Houle identifies three main
orientations of the adult learner:

• Firstly, some adult learners are activity-oriented. They pursue learning activities out of social or personal growth needs and they experience the satisfaction of their needs in the activities.
• Secondly, goal-oriented learners wish to use education to achieve some definite external objective, such as a certificate or promotion or to solve an immediate problem facing them.
• Thirdly, the learning oriented learners seek knowledge or skill for its own sake, because it interests them. Training Post (2004:2) differ with Gravett's third observation by arguing that adults have a purpose for their learning. They are not “learning for just learning sake”. Adults have a specific reason for learning a new skill or material.

3.7 Adult learner characteristics: implications for instruction librarian

3.7.1 Addressing learners' needs

Gravett (2001:11) maintains that the “process of determining learning needs should be a negotiated one - a transaction between learners and educator”. The implication is that educators should address the felt needs of the learners, but the educational encounter should not be compromised by the expressed needs of learners. The idea of meeting learners needs is heavily debated and criticised and Gravett is of the opinion that the concept of need was not clearly defined. Need refers to discrepancies between “an actual condition or state and a desired standard and wants imply interest and motivation”.

Felt needs are in the conscious awareness of the learner - his or her wants, desires and wishes - and prescribed needs are based on the educators’ belief concerning the skills, knowledge, behaviours and values that they feel adults should acquire. Gravett further proposes that felt needs and prescribed needs should appear in programmes for adult learners. Course content should always be made relevant to learners by linking the content to the learners’ current knowledge and perceived needs. A needs analysis aimed at eliciting felt needs, enables one to link the content to the needs.

According to Gravett (2001:12) a needs analysis should identify “the gaps between the learner’s current and desired proficiencies as perceived by the learner and others. The analysis should help define the what and what should be”. Steps of the needs analysis include the following:
• **Identifying the desired state**: this implies what the participants should ideally be able to think, feel, or do

• **Identifying the existing state**: that is, to what extent do learners already possess the desired abilities

• **Assessing the gaps**: this implies assessing the extent to which the existing situation matches the desired state. If no gaps exist, the educational activity is not needed. Gaps will vary in size, importance and immediacy

• **Prioritising the gaps**: this implies translating the gaps into the needs that should be addressed by the educational programme.

There are various ways of identifying learning needs, from formal to informal. Formal procedures for data collection such as the following can be used: questionnaires, individual interviews, focus group interviews, observation checklists, surveys and self-assessment diagnostic instruments can be used. An informal way of conducting a needs assessment is to task learners prior to the course or during the first session to provide their reasons for wanting to attend the course and to explain their expectations of the course. Another needs assessment technique is to provide learners with a list of important course topics. Learners are then required to prioritise the topics or indicate which topics they view as most important. The learners could also be asked to prioritise proposed outcomes. However, while it is essential to do need assessment prior to or at the onset of a course, needs analysis should be an ongoing process throughout the programme (Gravett 2001:12 - 13).

3.7.2 **Using learners’ accumulated experience**

The existing knowledge and experience that adult learners have, play an important role in the learning process. These experiences can be utilised and affirmed in the following ways:

• **Exploring learners’ existing knowledge**

  To promote meaningful learning, the learners’ existing knowledge that is related to the learning content should be lifted to the conscious level and be explored and clarified. The following can be used to lift existing knowledge to the conscious level:

• **Learners are invited to explain their current understanding of key ideas of the learning**
content in question, either individually or in small groups

- Learners are invited based on their experience, to make predictions about possible solutions to a problem and to support these with evidence (Gravett 2001:14).

3.7.3 *Linking new learning content to learners’ existing knowledge*

Gravett (2001:14) assert that instructors should link or make a connection of their explanations and illustrations to learners’ prior experience and should also ask learners to point out the connection between the learning content and their prior experience. Instructors must also assist learners to link their learning activities to current life experiences, such as at work, home or in the community.

3.7.4 *Assisting learners to reflect on their existing knowledge that might impede meaningful learning*

Adults have well-established attitudes that may be an obstacle to learning. The instructor should ensure that learners are afforded an opportunity to reflect misconceptions they may have and to scrutinise their convictions. The instructor can facilitate this process through stimulating uncertainty and doubt in learners and by confronting learners regarding discrepancies in their existing views (Gravett 2001:14).

3.7.5 *Providing opportunities for interaction with co-learners in small groups*

Gravett (2001:14) maintains that when learners work in partnership with co-learners, learners pool their resources and learn from each other.

3.7.6 *Creating experiences that can be utilised to stimulate reflection as a base for the construction of meaning*

The instructor must make use of case studies, simulations and role-play to establish a common base of experience for the learners. These techniques will enable learners to construct meaning through reflection on and discussion of the experience (Gravett 2001:15).
3.7.7 Assisting learners to learn from experience with a view to personal or professional transformation

As a person matures, the self-concept moves from one of a dependent personality toward one of a self-directing human being. During this process the adult accumulates a reservoir of experience, which serves as a rich resource for learning (Merriam 1987:190). When a platform is established for learners to reflect and act on their existing experience, the following observation is made:

• Learners talk about their experiences;
• Learners analyse their experiences individually or collectively; and
• Learners identify the implications of what is revealed and act on these implications (Gravett 2001:15).

3.7.8 Addressing the need for immediacy

When adults participate in educational activities, the desired outcome is to experience the immediate usefulness and relevance of new learning. Adult learners’ need for immediacy has the following implications for the instructor:

• Adults are more motivated to learn when they believe learning content is relevant and beneficial to their life situation. The instructor must provide the adult learner with a rationale for engaging in the intended learning
• Illustrative examples should be upon the life-world of the adult
• Learners seek the acquisition of new knowledge and skills to address a real-life problem. It is important that learners receive frequent feedback about their performance. Feedback must include the affirmation of progress and the indication of knowledge gaps that remain. Wlodkowski in (Gravett 2001:15) affirms that feedback promotes a questioning attitude, which is “conducive to learning”.
• Learners should be invited to indicate how new learning can be applied.
• Authentic assessment tasks should be used. Authentic tasks are connected to the adults life world and require learners to demonstrate what they have learned in the environment (real or simulated) where they will use that learning (Gravett 2001:14 - 16).
3.8 Summary

In chapter three the investigation into the theoretical foundations of adult learning and learning theories was discussed. The focus in this chapter was on the learning theories that instruction librarians must be aware of and the aspects they can incorporate in the facilitation of information literacy skills sessions. It was found that there is an artificial distinction between andragogy and pedagogy as the methods identified are interchangeable with pedagogy depending on which context it is used. It was found that pedagogy as a theory of education cannot be divorced from the learning process, even when training adult learners.

The concept of adult learner was enumerated to the notion that there is no such thing as the typical adult learner, as there are many factors that have an influence on adult learners. The concept of adult learner was further explained by the principles that underline learning theories. It was found that the principles aim to explain to the instructor why certain strategies are more effective in the instruction of information literacy skills than others.

In order to facilitate the learning environment, the generalised characteristic of adult learners that have implications for information literacy instructors were discussed.

The following chapter will focus on aspects that must be considered when designing information literacy modules and the aspect of collaboration amongst the academics, instructional designers and instruction librarians from other academic institutions.
CHAPTER 4

COURSE DESIGN WITH CONCEPTUAL MAPPING, MEDIA FORMATS AND COLLABORATION IN INFORMATION LITERACY SKILLS INSTRUCTION

In this chapter, the research literature on course design and development, and collaboration of the key role players during the process of designing the information literacy skills programmes is reviewed. Particular attention is being given to studies that are considered to be either of theoretical or empirical value, or both, for the present investigation.

The chapter is divided into two sections. The first section not only depicts the major facets of course design of information literacy skills programmes, but also briefly relates to the use of different media formats used in the presentation and facilitation of information literacy skills programmes.

The second section of the chapter identifies the technical and functional dimensions of collaboration in information literacy skills programmes. The three formats of collaborative relationships possible inter-and-intra institutions of higher learning are outlined.

4.1 Course design with conceptual mapping of information literacy skills programmes

According to the National Association of Distance Educators of Southern Africa (NADEOSA) (2004:1) “course design concerns itself with planning the content, pedagogy and assessment in individual courses.... “

In this study the term “course” will be used to refer to a sub-unit of a library skills and information literacy programme that is not leading to a formal qualification but that facilitates the competent use of information resources both print and online.

Cottrell and Jones (2003:170) define course design as a plan of action and a “purposeful creation of learning approaches and assessment methods aligned with an instructor’s vision”. The implication is that if students are expected to develop opinions about course material, the
instructor must design activities that require students to share and evaluate ideas, such as class
discussions, projects and case studies.

Course development takes place in teams, which may be as small as two members, such as a
Subject Matter Expert (SME), in this study it is the instruction librarian as an information
specialist and an instructional designer. Course teams may also be larger to include several
SME’s and an editor or a multimedia producer (online developer). However, the success of a
team’s efforts depends on how effectively its members are able to work collaboratively; this
concept of partnership will be dealt with in detail in the second part of the chapter (Inglis

A large body of literature exists on the processes of materials development and the content of
information literacy programmes, there is very little literature specifically on the processes of
designing. The dynamics of working in course teams is that adequate attention is paid to the
underlying design of the course. However, the SME’s concern for what the content of courses
should encompass has led to the neglect of issues to do with instructional effectiveness. This
may be due to the lack of a widely accepted method for documenting the design of a course
(Inglis 2003:247 - 248). Inglis (2003:248) opinionated that course team members need a
method that focuses the attention of the course team on the pedagogical aspects of design and
making key aspects of the design visible.

4.1.1 Designing in course development

4.1.1.1 Conceptions of design in relation to the development of learning materials

According to Inglis (2003:248) the preparation of information literacy skills learning packages
has a significant design component. Designing occurs at two different stages of the process.

Firstly, the development of the actual materials involves consideration being given to their
presentation. Secondly, the learner being the focus, consideration is given to the pedagogical
design of the internal structures of the materials during the development process.

Inglis (2003:248) and Walker and Arnold (2004:259) postulate that working on the design of
courses, involves achieving a correspondence between the key design elements. There must
be alignment between learning objectives (referred to here as intended learning outcomes),
activities and assessment methods with focal importance being placed on learning objectives,
and achieving alignment of learning resources contained in these materials with the activities
they are meant to support.

4.1.1.2 Documenting the design of courses

In design disciplines such as architectural design, documenting a design is regarded an
essential aspect of designing. Producing some type of design representation is seen as the
primary goal of the design process. However, there is no accepted form of design
representation for use in designing learning packages. The term design representation is
foreign to education but the closest approximation to a design representation in the field of
education is a course outline. “Teaching staff use the process of preparing the course outline to
clarify their ideas on what a course should include and how it should be structured” (Inglis

According to Inglis (2003:249) a course outline fulfils one of the principle requirements of a
design representation, “it sets out the key design elements”. However, the major deficiency is
that a course outline does not fulfil the other principle requirement of “showing how the various
design elements relate to each other”. Because of this deficiency, major discrepancies can be
found between the description of a course in a course outline and the course as it is offered.

4.1.1.3 The requirements of a design representation for course design

- The type of design representation used in course design should be capable of guiding the
design process itself. The form in which the document is presented needs to be able to
support the development team’s ongoing discussion as the design evolves. The document
needs to capture the key design elements and allow the relationship between them to be
portrayed and manipulated. Production of the design document should be an intrinsic part
of the overall design process.

- The design representation needs to be a working document rather than a finished
document. Designing a course is an ongoing, interactive process that does not stop when a
draft of the course materials has been produced. Development of the draft of the course
materials will often reveal oversights in the way the design of the course was originally conceived. Course team members must be able to return to the design document at any time to refine the current design.

- The design representation should be reasonably straightforward to use. To be capable of gaining widespread acceptance, any proposed method of documentation should provide a good fit with the requirements of the design process. A method of documentation that is not easy to use will probably not be used (Inglis 2003:250).

4.1.2 The conceptual mapping technique

4.1.2.1 The basic idea of a conceptual map

The idea of the conceptual mapping technique arose from the realisation that a design process is a process of representation. A process that takes an abstract idea, or a set of ideas and gives them concrete reality in order that they may be shared. In course designing, the sharing of ideas is important if the process is being carried out by a team (Inglis 2003:250).

Inglis (2003:250 - 251) concede that a conceptual map “describes the ways in which learners’ capabilities need to be developed and the means, specified in terms of learning activities and learning resources, by which this can occur”. A conceptual map does not describe the sequence in which learners will undertake activities. However, a conceptual map must be translated into a course schedule to arrive at a sequence.

4.1.2.2 The difference between a conceptual map and a concept map

A conceptual map differs from a concept map in two ways. Firstly, a conceptual map contains different types of information which includes intended learning outcomes, learning activities, learning resources, and types of assessment. A concept map contains only concepts.

Secondly, a conceptual map differs from a concept map in the way in which the information is presented. A conceptual map uses a tabular method of representation to show the relationships between elements, whereas a concept map uses a graphical-diagrammatic method of representation (Inglis 2003:251).
4.1.2.3 The information structure of a conceptual map

Inglis (2003:251 - 252) postulates that the type of information structure upon which a conceptual map is based, is a tree. A tree structure can be visualised as an organisational chart diagram. A tree information structure is generally used for representing the interrelationships between elements in a subject matter or the components of a course design. In a tree structure, concepts can be subdivided into sub-concepts. Procedures can be broken down into steps, and problem solving strategies involve the application of several principles.

As explained above, a conceptual map includes several different types of information elements. These are listed and defined in Table 4-1 (Inglis 2003:254).

Table 4-1 Categories of information in a conceptual map (Inglis 2003:254)

<table>
<thead>
<tr>
<th>Column</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>Index</td>
<td>Indicates the hierarchical relationships between individual intended student learning outcomes using a stepped numbering system (i.e., 1, 1.1, 1.2, 2, etc.).</td>
</tr>
<tr>
<td>Learning outcome (intended)</td>
<td>Describes what one would like students to be able to do after completing the course that one doesn't expect them to be able to do before they have begun it.</td>
</tr>
<tr>
<td>Activities</td>
<td>Lists what students will do in order to acquire the capabilities specified by each intended student learning outcome.</td>
</tr>
<tr>
<td>Time</td>
<td>Gives an estimate of the time required to complete each of the learning activities.</td>
</tr>
<tr>
<td>Resources</td>
<td>Lists the materials that students will be provided with in order to enable them to undertake all the activities laid down for the course, including material prepared by the course team, materials provided as copies, instructions for activities, and so on.</td>
</tr>
<tr>
<td>Assessment</td>
<td>Identifies the types of assessment items that will be used to measure the extent to which students have attained the intended learning outcomes.</td>
</tr>
</tbody>
</table>
Figure 4.1 shows the logical interrelationships between the information elements.

In interpreting figure 4-1, the way in which the elements are arranged, corresponds to the left-to-right sequence in a conceptual map. The relationships between most pairs of elements are shown as operating in both directions. This signifies that either element in a pair can influence the other. That is, specification of a particular learning outcome may be influenced by work on either a related activity or on the assessment method. This is consistent with the relationship and principle of alignment. The interrelationship between elements and the fact that an activity may be combined with other activities to create a larger activity, thus adopting a fine-grained approach to mapping activities is so as not to overlook learning experiences that will be critical to students’ attainment of particular learning outcomes. Through this cascade effect, of carefully documenting the design of a course, it is possible to identify the reasons for any learning deficits that may be observed and take action to correct the problems causing them (Inglis 2003:254 - 255).

Figure 4-2 shows part of a conceptual map that is under development and that has been designed using Microsoft Word table. Inglis (2003:255) maintains that a convenient way of
supporting the use of conceptual maps is to produce a template. The adoption of a format is critical in team situations where several people are collaborating in document production.

According to Inglis (2003:257) the satisfactory development of a conceptual map relies firstly, on the quality of interaction that takes place between the instruction librarian (SME) and the instructional designer. Secondly, conceptual map relies on the conventions employed in representing the design.

**Fig. 4-2 Fragment of a conceptual map in progress of development (Inglis 2003:256)**

<table>
<thead>
<tr>
<th>Index</th>
<th>Learning Outcome</th>
<th>Activities</th>
<th>Time</th>
<th>Resources</th>
<th>Assessment</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>Locate credible sources on the Web using a search engine</td>
<td>Complete project</td>
<td>3</td>
<td>Description of project</td>
<td>Project report</td>
</tr>
<tr>
<td>2.1</td>
<td>Select an appropriate search engine to locate a particular type of document</td>
<td>Read descriptions of types of search engines</td>
<td>0.3</td>
<td>Descriptions of search engines</td>
<td>Descriptions of scenarios</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Complete six selection exercises</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.2</td>
<td>Conduct a search</td>
<td>Complete three searches</td>
<td></td>
<td>Three search specifications</td>
<td></td>
</tr>
<tr>
<td>2.2.1</td>
<td>Define initial search terms</td>
<td>Prepare search terms from search scenarios</td>
<td>0.25</td>
<td>Description of method of identifying search terms</td>
<td>Five search scenarios</td>
</tr>
<tr>
<td>2.2.2</td>
<td>Retrieve document descriptions</td>
<td>Retrieve relevant material</td>
<td></td>
<td>Description of procedure for retrieving document descriptions</td>
<td></td>
</tr>
<tr>
<td>2.2.3</td>
<td>Vary the scope of a search</td>
<td>Read explanation of methods of varying the scope of a search</td>
<td>Description of methods of using keyword combinations</td>
<td>Multiple-choice quiz based on scenarios</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Complete three exercises</td>
<td></td>
<td>Descriptions of scenarios</td>
<td></td>
</tr>
<tr>
<td>2.3</td>
<td>Evaluate the suitability of items located on the Web</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.3.1</td>
<td>Recognize acceptable types of Web sources</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

4.1.2.4 *Other possible uses of conceptual maps*

Conceptual maps in this study have been described as a means of supporting the design or redesign of courses within a team development environment. Conceptual maps also serve a wide range of purposes, these include:

- **Developing a course schedule**: A well developed conceptual map will contain a
considerable amount of information that should be provided to students in the course schedule. However, the information must be expanded or rephrased to make it meaningful to students, as the information it contains was intended to be meaningful to those who are involved in using it for design purposes.

• **Guiding the development of an evaluation programme**: The detailed breakdown of the intended learning outcomes that is contained in the conceptual map provides a basis for measuring the actual outcomes of the course against the intended outcomes. This offers an objective means of evaluating the effectiveness of the teaching that is surveyed through the student opinion surveys.

• **Explaining the design of a course to a review panel**: The structure of the conceptual maps is oriented to documenting the design of a course from the learner’s point of view. A conceptual map is able to communicate easily to members of course review panels and to other participants in the educational process about what the course is set out to achieve. This contrasts with other methods of course documentation that gives only a general sense of a course’s scope and pedagogical approach. However, a conceptual map offers members of review panels the means of quickly grasping the structure of a course (Inglis 2003:260).

4.1.2.5 *Limitations of the conceptual mapping process*

Inglis (2003:261) concedes that conceptual maps do not provide a complete solution to the challenge of documenting the designs of courses. However, conceptual maps have been found to be effective in focussing the attention of course teams on the pedagogical aspects of design. Also a conceptual map enables the team members to share a common understanding of the structure of a course as the course evolves.

Moreover, the process itself has inherent limitations. Inglis (2003:261) maintains that the process should be seen as “representing a compromise between theoretical vigour and practical experience” but one that has potential to deliver significant improvement in the quality of the designed product. An inherent limitation of the conceptual mapping technique is its paper-based approach. This limitation arose from the tendency to drive the design process in the direction from definition of learning outcomes to the selection of learning activities. This
tendency originates from two factors. The first is the English language convention of reading from left to right which gives precedence to elaboration of intended learning outcomes over identification of learning activities. The second factor is the association of multiple activities with one intended learning outcome rather than several intended learning outcomes with one activity.

A criticism levelled against the conceptual mapping process is that even though teachers do adopt a systematic approach to designing courses, their work pressures do not allow them the time that this process requires. However, Inglis (2003:261) maintains that the adoption of a conceptual mapping technique generally result in a substantial reduction in the time required for development because it eliminates false starts and streamlines the development process.

4.1.3 Course design decision-framework

There is a need to articulate a set of criteria that should be considered when deciding what courses to develop for a hybrid (distance and on-campus) mode of delivery of information literacy programmes (Porto and Aje 2004:4, Smith 2004:25).

However, course designers together with instruction librarians must design courses that provide customised learning programmes for specific learners. The learning styles, experience, knowledge and learning goals of students must be taken into account (Cloete and Miller 2002:61).

The purpose of the criteria is to provide a framework that guides the learning design, selection of courses and of the processes, models and resources which should be devoted to course development. This uniform set of criteria provides:

- a framework for a systematic analysis of course development decisions,
- allows flexibility in the critical thinking that underlines the final decision, and
- encourages a considered, reasoned, and sound decision making process that influences course and programme quality, pedagogy, and development costs (Porto and Aje 2004:4).

The decision making in the design process is portrayed through two interweaved design life cycles. The first involves administrative decisions such as what should be developed and when. The second involves a set of pedagogical decisions such as how best to develop the course, how to present the material, how many resources to devote to the development project and, the
technological life cycles that form two concurrent processes that interject and support one another (Cloete and Miller 2002:64; Porto and Aje 2004:4). The following represents a standard set of criteria, broken down into these broad categories. The order of the criteria does not imply any particular weighting or ranked importance, since needs and priorities change within and across programmes over time (Porto and Aje 2004:4 and Mitchell 2004:1).

4.1.3.1 Learning design criteria

• Outcomes

With regard to learning outcomes the following must be considered:
- How and where are learning outcomes provided? Is this effective, useful and why?
- What is the quality of the outcomes? Do they cover knowledge, skills, values and attitudes?
- Do the outcomes meet the requirements of the course or programme?
- How effective are the activities in terms of assisting the learner to meet the specific outcomes?
- How effective are the activities in terms of transferability and applicability? Will the learner be able to practise, apply and transfer the skills learnt in the activities to a real life context (Mitchell 2004:1; Collaboration a value… 2004:1 - 2)

• Contextuality and authenticity

- To what extent are contextual tools (authentic case studies, real-life problems or narratives etc) integrated in the learning experiences?
- How are the contextual tools integrated with activities?
- How is the learner required to solve problems through activities based on life and work contexts?

• Content and theory

- How is the learner encouraged to be involved in making and exchanging meaning in the discourse of the discipline or subject field?
- How is the learner engaged in critically evaluating or contrasting theoretical perspectives and or international best practice?
- How effective are the activities in allowing the learner to use and apply new concepts and principles?
• **Reflection and metacognition**
  - How is the learner required to think critically and reflect on own actions and learning processes?

• **Activities: Learning skills**
  Are the activities included to help the learner communicate effectively in the language required of the discipline or learning area through sufficient?
  - reading guidance
  - writing guidance

• **Feedback to activities: learner**
  How useful is the feedback provided to activities in terms of the learner’s:
  - ability to assess his / her own progress, skills understanding?
  - ability to raise problems and comments with the educator?
  - ability to exchange ideas with a peer or a group of peers?
  Of importance is how effective is the feedback in terms of motivating and encouraging the learner (Mitchell 2004:2).

• **Feedback to activities: writer**
  How useful is the feedback in terms of the writer’s ability to
  - offer advice and encouragement
  - predict problem areas and address them
  - Problematic issues
  - maintain a constant dialogue with the learner
  - provide indications of competency levels / meeting outcomes
  - stretch the learner to higher levels of performance?

**4.1.3.2 Linguistic design (dialogue)**

• How **accessible and appropriate** is the language used for the target group? For example:
  - specialist or new vocabulary
  - sentence structure and length
- paragraph structure and length

• Does the writer mostly use the **active voice or passive voice**? What is the perceived effect on the target group?

• Is the **learner addressed directly**? How does the writer refer to her / himself? How does this contribute to the creation of a dialogue between learner and teacher / writer?

• Is the evidence empathy with the learner? How does this contribute to the creation of a dialogue between learner and writer (Mitchell 2004:2)?

### 4.1.3.3 Instructional devices

• How clear are the **navigational devices** (providing the learner with a consistent “map” of the learning process and content), for example:
  - course overview
  - list of content
  - bulleted learning items for each digestible chunk or mindmap
  - marginal notes (for example glossaries)
  - consistency in numbering
  - cross referencing to other units or part of units?
  - are reader stoppers used effectively, (for example page break per unit; graphic line or page division; verbal text indicating a physical break in the learning process)?

• Are cross-discipline references used effectively? Are there opportunities where these can be included?

• If **other media** are used, how are they integrated? For example:
  - PowerPoint slide show
  - audio / video cassettes
  - study schools / group visits
  - potential group / pair discussions with peers
  - online learning elements
  - virtual learning environment (for example, a virtual library tour) (Mitchell 2004:2).

### 4.1.3.4 Assessment design
• Formative assessment instruments (for example assignments, journals, portfolios)
  - How do the activities in the materials prepare the learner to successfully complete the formative assessment instruments?
  - How is formative assessment instruments integrated in learning materials?
  - How is the learner guided in terms of the assessment and the relevant study material?
  - To what degree are formative assessment instruments aligned with the outcomes?
  - How are assessment criteria and level descriptors used for assignments, and portfolios provided to learners (Mitchell 2004:2; Library Education… 2004:1 - 4)

• Summative assessment instruments (for example an examination)
  - What is communicated to the learners about the summative assessment?
  - How are learners informed about summative assessment paper format, assessment criteria and requirements?
  - How are questions aligned with the outcomes?
  - Is there consistency and coherence from activities to formative assessment instruments to examinations?

• To what degree is a balance struck between continuous and summative assessment (Mitchell 2004:3). Mitchell (2004:5) concedes that there should be clear coherence from the outcomes to the activities to the formative assessment to the summative assessment. In practical terms this means that the outcomes should be the guiding principles in terms of the activities as well as forms of assessment adopted. There should be clear links and no surprises for learners.

Cottrell and Jones (2003:2) and Porto and Aje (2004:5) are of the opinion that well planned assessment practices such as course portfolios, journal entries, papers, and exams can produce valuable information that an instructor can use to shape and modify the course design, with the goal to maximise student learning and development.

4.1.4 The use of different media formats in presenting information literacy skills programmes

Instruction librarians need to explore the types and quality of learning interactions if they want to create a learning environment that would foster and facilitate making meaning from information
literacy skills instruction learning for both distance and on-campus learners. For institutions that offer both distance and on-campus, the physical separation of instructor and learner requires that different media such as using print, audio, video and computer - mediated technology be used (Kizito 2003:29). According to Kizito (2003:29) the reviews of media influences on learning revealed that there is no significant advantage in the use of one medium over another. However, institutions offering a hybrid mode of delivery needs to invest in strong technical and course design support (Smith 2004:29).

4.1.4.1 Educational media

Educational media is characterised as a means by which something is communicated between teacher and learner. Educational media are channels through which educational texts, written or spoken words, still images, moving or messages such as sound tunes and codes are communicated or used to represent reality or aspects of reality (Kizito 2003:30). For this investigation, educational media such as course guides, handouts and manuals which use print as their base technology will be regarded as print media. Electronic media will include web-based resources as online tutorials and research gateways.

The information literacy skills instruction environment consists of two structures, the online environment and the print environment. There is some blurring but not convergence of conventional institutions and distance education institutions. A growing interest in online and distance education has created new opportunities and methods of how to teach students library research and information literacy skills (Dupuis 2001: 11.1). While instruction librarians are faced with a challenge to provide learners with practical experience in using media common in contact and distance education institutions, the information literacy programmes should reflect the pedagogic principles of experiential learning (learning by doing), critical reflection, collaboration and a social constructivist perspective as discussed in chapter three (c.f. 3.5) (Kizito 2003:30 - 31).

4.1.4.2 Media effects and characteristics on learning interactions

Media have characteristics which can change the nature of learner interactions. The learner interaction is critical in electronically mediated interactions, especially in contexts where the learner is not familiar with the media interface. Online instruction offers a mixture of benefits
together with increased expectations. Distance education implies that the use of online tutorials benefits an institution to reach a larger number of people. Campus and remote students have the advantage of accessing the training or instruction at any time and from any location (Dupuis 2001:11.1).

The media characteristics relate to issues such as:
- accessibility to students (the skills required to access the learning content);
- ease with which the student can manipulate (re-play, re-organise, add, remove, search text).
  Tutorials are to be developed so the user can proceed through in a self-paced manner; lingering longer on complex issues and skimming through topics already known (Dupuis 2001:11.1).
- portability (removal from restriction to place);
- familiarity with the media on the part of the learner;
- sense of immediacy they bring to the learning interaction;
- cost of reproduction, and distribution (Kizito 2003:31). Development requires a lot of expertise. However, if the design places emphasis on longevity of the content, then the larger is the return on investment with regard to effective use of limited staff time (Dupuis 2001:11.1).

In order to illustrate how each medium would affect learner interactions, a comparison of a manual and online tutorial along these dimensions is given in table 4.2.

### Table 4-2: Comparison of characteristics of manual and online tutorial (Kizito 2003:34)

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Manual</th>
<th>Online tutorial</th>
</tr>
</thead>
<tbody>
<tr>
<td>accessibility to</td>
<td>accessible if learners are literate</td>
<td>same as manual but learner must be computer literate</td>
</tr>
<tr>
<td>ease of manipulation</td>
<td>easy to manipulate, re-read, annotate, search, etc.</td>
<td>depends on structure of online tutorial</td>
</tr>
<tr>
<td>portability</td>
<td>very portable</td>
<td>portable if you own a notebook and can get connected easily</td>
</tr>
<tr>
<td>familiarity to learner</td>
<td>very familiar depending on language</td>
<td>depends on previous exposure and location of learner, rural /urban, academic setup, etc.</td>
</tr>
<tr>
<td>sense of immediacy</td>
<td>does not give sense of immediacy</td>
<td>give sense of immediacy</td>
</tr>
<tr>
<td>cost of reproduction and distribution</td>
<td>cheap</td>
<td>expensive, in terms of connectivity setup and maintenance</td>
</tr>
<tr>
<td>limitations</td>
<td>linear representation of text</td>
<td>can be expensive to maintain</td>
</tr>
</tbody>
</table>
4.1.4.3 Quality of interaction and depth of processing

Kizito (2003:34) contends that “the quality of interaction depends on the depth of processing” which can be linked to the five learning activities that underlie the notion of desirable learning. These are:

- Acting on (learning by doing) or experiential learning, which suggests that the learner must leave his or her mark on the learning text;
- Interpreting or making meaning, involves reformulating the content;
- Reflection is a central learning activity involving forming individual points of view and critically considering issues raised. Self-reflection is a major component of adult learning;
- Collaboration is a learning interaction that allows the learning processes to be democratic, cognitively stimulating and challenging. The outcome of this form of learning include high mastery and retention levels improved quality of reasoning strategies and positive effects on social, motivational and attitudinal outcomes;
- Articulation, for a second language user, the thought process interprets concepts in a different language.

The learning activities can be used as barometers to obtain an idea about the potential pedagogic function for each type of medium within a learning environment.

Kizito (2003:35) notes that other issues that affect learning using media are related to how the instructor uses the learning activities, the instructor’s awareness of each medium’s capability in supporting different learning activities and learner needs.

4.1.4.4 Implications for designing and information literacy skills programmes

To design an effective learning environment requires an analysis of the learning (what needs to be learned), an identification of the relevant support mechanisms and, a choice of the correct instructional methodologies. There are two layers within the design process, firstly, a conceptual design layer informed by theoretical knowledge about learning. Secondly, a presentation design layer which is about media choice and integration. As the design process is a product of intuitive ideas, expertise in the following is required:
4.1.4.4.1 Pedagogy (learning)

The instructor should be able to draw on the theories about learning and instruction. The pedagogic approaches such as the instructivists, constructivist and collaborative, and student-centred approaches can be used in the process. These approaches are based on the assumption that “learning is a process of constructing meaning derived from the learner’s action in the world or, put differently, a process of knowledge construction” (Gravett 2005:19). The constructivist perspective argues that learners are not passive beings but learning “is an active process of constructing meaning and transforming understandings in interaction with the environment” (Gravett 2005:20). Within the South African environment, the trend is to use an outcomes-based learning paradigm (Kizito 2003:35). However, instruction librarians need to understand that learners understand new information they need to learn through their existing knowledge framework (c.f.3.5).

4.1.4.4.2 The learning domain or area

The instructor must customise content for the needs of the learners and sequence and structure the learning activities to the learning outcomes. In the case of online activities, factors such as the duration of the task are important. The principle of “reciprocity”, which is a component of the learning-teaching interaction that facilitates meaningful learning to occur, must be encouraged (Kizito 2003:36 and Engelbrecht 2003:43). This also includes the interactive learning activities that learners must complete to receive some form of evaluation.

4.1.4.4.3 Knowledge of the medium used

Within the South African context, the instructor must have an understanding of the medium used in order to make an informed decision about appropriate technology options as to avoid design decisions which may prove to be complex, unattainable and expensive. The issue of access to different forms of media (such as Internet access) is still a problem (Kizito 2003:36). However, students should not be denied access to the content based on the need for specific hardware or bandwidth limitations (Dupuis 2001: 11.1). Therefore, technology should be used to support a good learning experience as pointed out by Laurillard in (Kizito 2003:36) that “successful use of media depends on the learning context together with an understanding of how selected
technologies work and under what conditions they appear to be effective”.

Walker and Arnold (2004:261) concede that matching the technology with the correct pedagogical approach is central to the success of course design and delivery methods. According to Dupuis (2001: 11.1) no one style of instruction is appropriate for all situations. Online and in-person instruction can vary based upon the instructor’s skills and pedagogy. Tutorials may vary in how well they utilise the medium, address their audience’s need, require students to apply the concepts learned, and offer feedback. The issues of design, interactivity, and assessment must also be considered.

Kazmer’s (2004:6 - 7) approach to course design involves “knowing that different students prefer different ways of interacting online”. Students are provided with a variety of opportunities to express their “online identities”. An online identity involves the instructor getting to know and understand where the students come from and the students gain some kind of satisfaction in the learning experience. Course design must provide the student with a variety of media (chats, share board, assignments) and modes (one-to-one, one-to-many, many-to-many) of interaction. Kazmer (2004:7) maintains that different communication media and modes reward different types of online characteristics. The design of a course must be able to accommodate most students, as not everyone has similar online characteristics. For example, synchronous communication rewards the students with the ability to think on their feet. A process must be in place during course design that do not unduly penalise students based on how they work and learn online.

### 4.2 Managing partnerships in the design and development of information literacy skills instruction

Collaboration and coalitions outside the academic library are regarded as an excellent opportunity to build support, alliances, and confidence in the way the library can contribute to the re-engineering of the teaching and learning environment (Escobar Jr et al. 2002:346 and Doskatsch 2003:112).

#### 4.2.1 Why collaboration?

Much is being written and said about collaboration at present. Patterson (2001:8) suggests that
the ability to collaborate should be a core competency in higher education institutions. There are many different types of collaboration. They range from broad cooperative relationships to formalised consortium and from contract models that are arrangements between units of one institution to total mergers of different institutions.

The challenge of the educative role of librarians in higher education has impelled alliances and co-operative ventures between different stakeholders. Instruction librarians are encouraged to foster collaboration between themselves and librarians from other institutions. Librarians are urged to network and share ideas with colleagues in order to improve their methods of facilitation and their anticipation of learner needs. This is seen as crucial in the enrichment of the educational experience of learners and in the achievement of lifelong learning (Doskatsch 2003:111).

Collaboration is defined as “a mutually beneficial and well-defined relationship entered into by two or more organisations to achieve common goals. The relationship includes, a commitment to a definition of mutual relationships and goals; a jointly developed structure and shared responsibility; mutual authority and accountability for success; and sharing of resources and rewards” Mattessich and Monsey in (Bernnard and Jacobson 2002:3).

Although, this definition refers to organisations, it also applies to individuals. Raspa and Ward in (Bernnard and Jacobson 2002:4) specifically describe collaboration among individuals as a “pervasive long term relationship in which participants recognise common goals and objectives, share more tasks, and participate in extensive planning and implementation”. This definition echoes the focus of chapter three on fostering partnerships based on teams when designing instruction models.

In the context of collaboration among organisations or individuals, collaboration is perceived to save costs, whether monetary or time-related when it is agreed upon during the early stage of a new initiative. Also the individual expenses in planning, research and training can be reduced (Bernnard and Jacobson 2002:4).

Collaboration can move from an interpersonal level to a synergetic level. The interpersonal level of collaboration is evident where “the partners begin to explore with personal and interdisciplinary areas of interest, and may undertake small projects” (Bhavnagri and Bielat
4.2.2 The objectives of collaborating

As noted by Bergquist et al. (1995) in Rockman (2002:192 - 193), there are multiple purposes for establishing partnerships. Notedly that:

- Partnerships are formed to yield efficiency and allow participating parties to do more with less. They provide high-quality products or services at a lower cost than is possible working in isolation.
- Partnerships allow flexibility. Their structures and agreements can be changed to meet shifting needs and conditions.
- Partnerships offer expanded resources. Partners have easy and convenient access to important specialised resources, such as expertise, space, technology, and materials.
- Partnerships create expanded markets for their participating organisations, including a wider geographic reach and access to new segments of an established market.
- Partnerships offer their participants a sense of interdependence. Through offering connections and community, partnerships increases the participants' involvement and reliance on, people in other participating organisations.
- Partnerships offer an increased opportunity for personal gratification, personal involvement, control, and professional fulfilment.

4.2.3 How to establish partnerships

When planning partnerships, the stakeholders or key groups must be identified. These groups must share common values, possess needed expertise, or can creatively enhance and expand library services and instructional programmes. For a partnership to be effective, the following characteristics must be observed:
- clarify expectations;
- plan accordingly;
- maintain trust;
- communicate frequently and openly;
- clearly delineate responsibilities, and
- resolve conflicts through joint problem-solving techniques (Rockman 2002:193).
Callison et al. (2005:95 - 96) is of the opinion that a key to any type of collaboration “is the ability of the involved parties to consistently communicate their respective goals and objectives throughout the planning process”.

4.2.4 Elements of collaboration

The underlying changes to the role of information literacy skills instruction resulted in the instructional programmes shifting focus from the informal collaboration arrangements (traditional one-on-one collaborations), to a more formal structured sharing of information literacy goals with the academic departments, non-academic structures, and other institutions or organisations. However, this shift requires the librarian to rethink and extend their collaborative skills. There are principles of collaborating that provide librarians with insights into how they can facilitate and anticipate successful partnerships in a dynamic instructional environment (Scales et al. 2005: 229 - 232). The following elements of collaborating are identified as significant for instruction librarians:

4.2.4.1 Assumptions

Players to the collaborative process bring assumptions that are varied about a certain concept, and this would include perceptions about the duration of collaboration and ideas about content and course organization. The conversations that ensue to resolve the difference of assumptions must allow for discussion, debate, misunderstandings, and breakthroughs to surface as well as compromise and the resolution of differences. The parties must reach a new understanding of shared knowledge and assumptions (Scales et al. 2005:233).

4.2.4.2 Authority

A number of issues must be addressed with regard to authority in the collaborative process. Firstly, the issue of responsibility for the project must be discussed before the collaborative process commences. The second issue is about who makes the ultimate decisions regarding the goals and objectives, course content and material, and the course presentation (Scales et al. 2005:233). Breivik and McDermand (2004:212) opine that new collaborations must be balanced by continuing to build on old successes.
4.2.4.3 Group composition

Group size, heterogeneity or homogeneity, ethnicity, and work phases, are elements that influence how successful or unsuccessful a collaborative group would be. Scales et al. (2005:234) assert that heterogeneous groups of four or five people collaborating are efficient however, ethnic differences and perceptions of dependence and interdependence (concepts that influence work phases) add complexity to the collaborative group.

4.2.4.4 Language

Collaborative groups must learn to speak each others’ language, thus, the need to describe goals or concepts in a language understood by all collaborative players. The players must internalize the language of the conversation for the purposes of negotiating a consensus (Scales et al. 2005:234).

The collaboration that this study investigates is threefold. The first form of collaboration is with the faculty or academic departments. The second is with the instruction units or course designer departments within the institutions. The third form of collaboration is amongst the instruction librarians peers at other institutions of higher learning.

4.3 Instruction librarian as advocates for collaboration with academic departments

A large component of the instruction librarian’s job description in academic libraries includes the development of information literacy programmes for faculty and schools. The information literacy literature advocates an integrated model of faculty-librarian collaboration in information literacy skills instruction. However, the emphasis is on the negatives such as complex issues of emotions surrounding the benefits and pitfalls of the faculty-librarian working relationship. This study tries to examine the positive alternative in the faculty-librarian partnership (Given and Julien 2005:27 - 28; Badke 2005:64 – 65; Manuel et al. 2005:141; Owusu-Ansah 2001:284).

Collaboration is perceived as a value that underlies the instruction librarians’ daily work and activities. Collaboration is also viewed as a method to strategically pursue the goal of information literacy for every student. However, primary among the collaborative relationships
are those that bring faculty and librarians together around questions of improving student learning through course-integrated information literacy activities and projects (Collaboration a value….2003:1 and Maughan 2001:10.3).

Owusu-Ansah (2001:285) asserted that “the imperatives of the moment call for a partnership between library and faculty. They call for an extended role for academic libraries in the formation of the intellectual aptitude of the student”. Additional demands for higher production on the faculty in terms of teaching, research and scholarly activities place more stress on the higher education environment. In responding to the ensuring pressure, information literacy skills instruction should be seen as basic and inalienable to the proper preparation of the student, thus by default a prerequisite for graduation (Rader 2002:187). However, Fiegen et al. (2002:309) note that the advancement from ad hoc skill-based orientations to a more integrated cognitive method based on developing educational standards and demand for information literate graduates calls for a strategic alliance between librarians and faculty.

In summarising the collaboration between instruction librarians and biologists in the sickle cell project, Bowden and DiBenedetto (2002:6) found that the project resulted in a quality learning experience for students while providing a professionally enriching experience for faculty and librarians. Therefore, Bowden and DiBenedetto are convinced that collaboration of this nature will greatly enhance their efforts as educators to develop in their student’s sophisticated levels of scientific and information literacy.

According to Rader (2001:14.4 - 14.5) collaboration is possible and can be effective for both academics and librarians in repositioning the teaching and learning environment. The academic librarian long term goal has been to form partnerships with faculty, as they contribute and support the teaching, learning and research process through building collections, provision of electronic information access, proactive library services, and information skills instruction (Rader 2002:188). This partnership is evidenced by the establishment of national collaborative groups in higher education in the United States. However, for such partnerships to be effective, librarians need to be proactive rather than reactive, and show entrepreneurship and creative ability in their interaction with the academia (Rader 2001:14.5). Doskatsch (2003:119) suggests that pro-activity rather than negativity facilitates the collaborative cycle and librarians need to shed their preconceptions and accept shared responsibility for student learning.
There is a need for library and academic staff to develop a trusting, sharing relationship, and opening the channels of communication. Also to clarify the roles of partners and the collaborative process of planning, delivering and evaluating learning programmes (Dickson 2004:153 - 154).

In a focus group study conducted between academic staff and instruction librarians to identify the needs of client groups according to colleges and the ways in which the library staff and resources could meet these needs, Dickson (2004:154) pointed out that the collaborative projects with academic staff support information literacy training, raise the profile and awareness of librarians, and foster acceptance of librarians as an integral part of the academic environment. Partnerships with academic departments are seen to provide ongoing opportunities for shaping student-learning experiences. They reinforce librarian-academia collegiality and offer a forum for librarians to introduce and illustrate their library resources and liaisons (Breivik and McDermand 2004:211 – 212; Webber 2002:52).

Collaboration with the librarian enhances the faculty member’s awareness of new resources and strategies useful in research. Faculty collaboration for the librarian, enhances their understanding of the faculties’ expectations and the of student outcomes on library assignments (Bhavnagri and Bielat 2005:129).

With many of the professional competencies requiring students to understand the dissemination of professional literature and the ability to retrieve appropriate resources, faculty and librarian need to collaborate on the design of information literacy instruction sessions that are integrated to course work (Lampert 2005:19). According to Tenopir (2003:36); Cunningham and Lanning (2002:347) information literacy programmes that are integrated into the curriculum can lead to an improvement in the academic achievement of students.

The relationship between instruction librarians and faculty may not exist in institutions of higher learning, due to the entrenchment faculty culture that places emphasis on the divergence of interests on the differing pedagogical discourses. However, the academic department is indispensable to the success of the academic library’s instructional aspirations (Owusu-Ansah 2004:7).

D’Angelo and Maid (2004:213) maintains that information literacy programmes do attempt inter-
or cross-disciplinary partnerships, and individuals across campus often find affinities and shared intellectual interests with individuals in other units. The reality is that higher education discourages such partnerships as all real business takes place within the organisational chart of the university.

However, D’Angelo and Maid (2004:212 - 213) eloquently urges librarians to be teachers and to recognise that the subject of information literacy is a discipline that needs equal footing with other disciplines in order to succeed, both in terms of curriculum development and for the goals of information literacy to be successfully achieved. The political realities of curriculum development, is that it is driven by faculty. Despite the barriers of not having a department or disciplinary programme from which to establish curriculum, librarians are placed in a difficult position of attempting to effect curricular change and integrating information literacy through collaboration, which often results in frustration. Even though time and energy are spent on advocacy and their individual efforts are not sustainable beyond the work of the individual librarian, librarians are doing a lot to advance information literacy programmes on their own.

Exemplary faculty-librarian partnership is built on shared understandings of how collective expertise can enhance student learning and research. Collaboration is sustained by mutual appreciation of how interdependent activities impact the partnership. However, where librarians are in the process of negotiating collaborative roles, librarians must promote the benefits of their expertise and focus must be on the outcomes (Doskatsch 2003:117 - 118).

Cunningham and Lanning (2002:345 - 346) suggest possible solutions to make contacts and establish the necessary relationships as to firstly, implement a library liaison programme, in which librarians engage in outreach activities of attending faculty meetings and provide updates or refresher sessions about library resources. Secondly, librarians may use the traditional library induction session aimed at academics and researchers and, also the instruction sessions as a promotional tool. These hypes of outreach activities facilitate to build a positive campus identity for instruction librarians and the library.

4.4 Instruction librarian collaboration with Course Designers or Instruction Units

There is a natural link between instruction librarians and instructional designers. The goal of the instructional centres at institutions of higher learning is to improve teaching, a goal generally sought by instruction librarians as well. Many librarians have little or no teaching experience at
the time they are asked to participate in library instruction programmes. Others do have experience, but are interested in honing their teaching skills. The growth in academic libraries intend in offering information literacy related credit courses is also a contributing factor for librarians to gain a new set of teaching skills. The cooperation between instructional centres or units and instruction librarian would provide opportunities for participants to talk to each other about issues related to learning theory and to work as teams on redesigning the structure and contents of information literacy skills programmes (Jacobson 2001:312 - 313).

In summarising the survey respondents on past and current partnerships between instruction librarians and instructional units, the findings pointed out that the largest number of partnerships were initiated by instruction librarians (Jacobson 2001:312). Partnerships must be initiated directly by instruction librarians, whereas others may require action on the part of a library director. Through these partnerships, instruction librarians should make known their desire to work more closely with the instructional unit or centre. Instruction librarians may find the centre or unit to be a valuable resource and make use of its resources in a variety of ways. These would include the attendance of presentations and workshops offered by the centre or unit. Also the partnership would provide high visibility for the libraries instruction programmes and make academics aware of the teaching role of librarians (Jacobson 2001:313 - 316).

Instructional designers or learning developers typically have close relationships with the faculties. They can use their influence to help facilitate collaboration between librarians and the academic departments (Cunningham and Lanning 2002:346).

Instruction librarians need to engage with pedagogical paradigms dominant in higher education and demonstrate competence in course design and delivery appropriate to a learning environment that is global, flexible and student centred. The collaborative activities with the institutions instructional designers would provide opportunities to develop teaching competencies and pedagogic understandings (Doskatsch 2003:117). The academic libraries in the United States of America are partnering with academic units to assess the educational outcomes. This partnership encourages the design of courses with outcomes that are related to library and information skills (Rader 2002:189).

Active learning techniques have become the norm in the higher education environment and are incorporated in information literacy skills instruction. Librarians are building expertise in
developing web-based course material, and this learned expertise can be used in the design of learning environments together with a team of multi-disciplinary experts. These would include experts in developing course material, programmers, graphic designers, and experts in assessment, working together in designing learning environments that would offer alternative learning routes to different types of students, whether in print and electronic (Roes 2001:2.7 and Rader 2002:189).

4.5 Partnership with other instruction librarians: co-operative ventures

The literature of librarianship constructs a complex picture of the educative role of librarians. The library and information science qualification does not recognise that, a commitment to facilitating information literacy means a re-conceptualisation of the librarian’s role. The qualifications fail to adequately prepare graduates with the skills and experience for an educative role. Thus, the majority of librarians with information literacy responsibilities can competently assume the educational role as depicted in the literature (Doskatsch 2003:113).

In the literature review, there is an indication that co-operative ventures among libraries have long been a strong component of library work. The limitation is that there is no indication of any consortium-wide or collaborative efforts by the librarians themselves to collaborate on information skills instruction. Collaboration is regarded as valuable in reducing the individual workload of instruction librarians when developing information literacy programmes, and the synergy involved improves the overall quality of the programme (Kelsey and Lenares 2002:307; Rader 2002:190; Crowther and Trott 2004:6 - 9).

Partnerships among instruction librarians from different academic libraries through the consortium, brings together people with valuable skills and experience to the table. As collaboration can save on costs and individual expenses such as on training, the instruction librarians use this benefit to cooperatively arrange a series of workshops to address the skills gap. These re-skilling sessions are perceived to help instruction librarians to become more confident in their ability to teach; foster a sense of camaraderie among the participants; and the session would constitute a forum in which participants can air failures, successes, and concerns regarding their educator role (Bernnard and Jacobson 2002:6).

The Gauteng and Environs Library Consortium (GAELIC) is a cluster of nine academic libraries
in Gauteng, Limpopo and the North West Province in South Africa. It is the first major project of the Foundation of Tertiary Institutions of the Northern Metropolis (FOTIM). GAELIC, came into being in response to the request by the South African Government for tertiary institutions to cooperate and become more cost-effective. It has grown into the largest academic library consortium in South Africa.

The vision of GAELIC is to create a virtual library with local service interface, forming part of a global information community for clients in Gauteng province and its environs. Its mission is to utilise fully and develop the information resources of this region for the purpose of promoting education, research and lifelong learning amongst its clients.

The User Education Workgroup is one of the five workgroups in the Information Resources Focus Area Team of GAELIC. The User Education Workgroup serves as a good example of instruction librarians who cooperatively hold regular meetings and workshops to address issues of mutual interest. The User Education Workgroup functions are to:

- influence member institutions to recognise the need for information literacy instruction,
- press for greater institutional openness to the integration of information literacy with academic teaching programmes,
- provide minimum guidelines for the content and structure of information literacy programmes,
- develop and deliver courses and workshops to train librarians responsible for instruction,
- create an opportunity for members to share, exchange and collect ideas, on all aspects regarding the creation and development of information literacy modules and programmes (GAELIC 1998).

The GAELIC User Education Workgroup initiative has facilitated member libraries to become more visible on campus, and effective in producing positive information literacy skills learning outcomes. According to Rader (2001:190), experience of partnership with other libraries is firstly the establishment of a librarian internship and secondly, librarians working together to develop their instructional expertise to teach information skills.

4.6 Summary

This chapter examines the nature of course design with reference to conceptual mapping,
including the theoretical origins, the learning design criteria and the use of different media formats in facilitating information literacy skills programmes.

In the final section, the management of partnerships during the design and development of information literacy skills programmes is addressed in four parts. The first part is an overview of collaboration, its objectives and how collaboration can be established and implemented in order to facilitate information literacy skills instruction. The second part is a review of a partnership between the instruction librarian and faculty in facilitating information literacy skills programmes. The third part explores the nature of a collaborative relationship between instruction librarian and instructional designers or course designers in the design and development of information literacy skills programmes. Lastly, the co-operative partnership amongst the instruction librarians, with the focus on resource sharing and skills development initiatives that would benefit the information literacy skills programmes is discussed.

In the next chapter, the research methodology and design are presented to explain the empirical study which was used to test the problem statement stated in chapter one.
A research study has two distinct stages that characterise the transition from a hypothesis or problem statement to the gathering of data. The two distinct stages are conceptualisation and operationalisation.

The first part of this research study, focussed on conceptualisation which is reflected in the theoretical framework, where the most important theories, models and concepts relating to the topic being investigated are introduced. In the second part, operationalisation takes the form of empirical research, whereby a procedure and measuring instrument is developed to collect accurate data about the dimensions of a theoretical concept or construct that can be repeated and verified by others. When these data are gathered and ordered as facts, they form a basis to support the theoretical body of knowledge (Neale and Liebert 1986:6 - 157; Dalton 1991:118).

In this study, the theoretical framework, based on the literature, is presented in chapter two to four. The framework presents, in broad terms, the challenges faced by librarians as teachers as a background to the study and then adapts the principles of adult-learners, derived from the education theory, for application in the training of information literacy skills in academic libraries. Finally, the study narrows the focus to the course design and the management of collaboration as experienced by instruction librarians.

This chapter explains the empirical study which was used to test the problem statement stated in chapter one. The research methodology and design are presented. The sampling of the population studied is described together with the design, pre-testing and administering of the survey instrument. Lastly, the procedures for extracting the research data from the completed questionnaires for analysis are explained.
5.1 Research design

5.1.1 Definition

A research design is a plan for translating research objectives into measurable and valid information (Nardi 2003:7). At a more advanced level, the research design serves as a blueprint for the project, and sets up the framework for the several stages involved. The research design stages involve the development of concepts that are derived from ideas, theories, or prior research, the conditions for the collection and analysis of results or data in a manner that aims to combine relevance to the research purpose with the economic factors taken into consideration (Nardi 2003: 34 - 35).

Research design is distinguished into two types, namely experimental research and non-experimental research. In experimental research design two groups are compared, one called the experimental group, the other the control group. The researcher controls or manipulates the environment to prevent other possible causes from affecting the outcome of the experiment. In non-experimental research, the investigator cannot manipulate the variables and is unable to create carefully controlled conditions. Despite the many variations and criticisms levelled at non-experimental design, its methods are used in social psychology, education and as well as library and information science (Nardi 2003: 14 - 15).

5.1.2 Choice of methodology

5.1.2.1 Survey research

The nature of the research undertaken was instrumental in determining the methodology applied. Since the purpose of the study was to determine opinions, attitudes and orientations of instruction librarians with regard to their skills and knowledge, the survey research was the appropriate search method to use.

Surveys are perceived to be excellent vehicles for measuring attitudes in a large population. Surveys are mainly used in studies that have individual people as units of analysis. Surveys include the use of a questionnaire, an instrument specifically designed to elicit information that will be useful for analysis (Babbie 2005: 251 - 255).
5.1.2.1.1 Questionnaires

According to Nardi (2003: 58) and Babbie (2005: 253), a questionnaire is a survey instrument or document containing questions and other types of items designed to solicit information appropriate for analysis, and is completed personally by the respondent. This is known as a self-administered survey instrument. It is acknowledged that questionnaires are the most popular forms of surveying the opinions and perceptions of individuals. Questionnaires are usually distributed through mail, but an increasingly popular way of creating and distributing self-administered questionnaires is with computers. Marketing researchers find that this method increases the response rate. Online questionnaires can be sent to respondents by e-mail or respondents can be directed by an Internet link to a web site which hosts the survey. However, one major limitation of computer-based surveys is access (Nardi 2003: 60). The research design used in this study was the computer-based survey method with a cross-sectional approach. The survey instrument was an online questionnaire which was e-mailed to the sample population.

5.1.3 Population

Babbie (2005:112) describes a population for a study as that group (usually of people) about whom we want to draw conclusions. However, with limited time and money researchers are unlikely to study the entire body of relevant facts about the whole group of people under investigation. Therefore, the findings and conclusions in survey research are based on information gathered from a limited number of people from whom generalisations can be made about the whole number.

It should be noted that in order to figure out what the population parameters are, the researcher needs to make inferences from a subset of the population; that is, statistics must be generated from a sample of people chosen to represent the entire population (Nardi 2003:98). According to Babbie (1990: 72) the survey population is that aggregation of elements from which the sample is selected.

The instruction librarians in academic information services in South Africa constituted the population for this investigation. In this study the survey population comprised instruction
librarians from nine academic information services affiliated to the Gauteng and Environs Library Consortium (GAELIC), namely University of South Africa, University of Limpopo, Tshwane University of Technology, University of Pretoria, University of Johannesburg, North-West University, University of Venda for Science and Technology, University of the Witwatersrand and Vaal University of Technology.

5.1.4 Sampling

As stated previously, researchers are unlikely to survey whole populations for two reasons. Firstly, factors such as geographical dispersion, the size of the population, time and costs militate against such an approach. Secondly, using a sample of people from the whole population is a vehicle for maximising the external validity of the research study (Nardi 2003: 98). Thus, sampling is described as any procedure for selecting units of observation (Babbie 2005:185). The findings, formed on the basis of data or information collected from the sample, can be generalised beyond the sample of the whole population.

5.1.4.1 Sample

The purpose of sampling is to increase the external validity of survey research. It involves selecting a sample which is a representative proportion of the survey population being studied. Therefore, this enables the results to be generalised from the sample to the population (Babbie 1990: 65).

5.1.4.2 Sampling unit

A sampling unit is an element or set of elements which has potential to be included in the sample (Babbie 1990: 73). Forty-two instruction librarians within GAELIC represented a sampling unit in this investigation.

5.1.4.3 Sampling frame

For researchers to be able to select a sample, they make use of a sampling frame which is a list of sampling units or an actual list (Babbie 1990:73 and Nardi 2003: 99). In this study, the survey population comprised subgroups from nine academic information services with a varied
geographical dispersion. As part of the procedure to ensure that a representative sample was selected, the GAELIC User Education Workgroup mailing list was used as a sample frame.

5.1.4.4 Sample size and error

Nardi (2003: 98) maintains that a sample size is guided by two principles. Firstly, as large a sample as possible should be used within the economic constraints of the study. Secondly, the sample size is not a function of the degree of accuracy and precision desired. The larger the sample, the more precision can be achieved in making statements about the population from which the sample was drawn.

When researchers collect data from a sample because they are unable to do a full population study, some degree of error occurs because there will be a difference between the information (the statistics) gathered about the sample and what the parameters of the population are. This difference is called sampling error. Sampling error must be considered in survey research as it reflects the degree of confidence and accuracy of the study.

For this study, the sampling had to be biased as the intention was to solicit data from a specific category of librarians who are mainly involved in the teaching of information literacy skills and within the GAELIC profile.

5.1.4.5 Sampling methods

Two methods characterise selecting a sample, namely probability and non-probability. Non-probability sampling cannot guarantee that the sample observed is representative of the whole population. By contrast, probability sampling fulfils the two criteria of a sampling method, namely representativeness and equal probability of selection. Probability sampling means that the chance of a sampling unit being selected is random. This process protects the study against bias by guaranteeing that each element has equal chance of inclusion in the sample. This also ensures a high degree of external validity. The key to generalizing from a sample to a larger population is probability sampling, which involves the important idea of random selection (Babbie 2005: 185).
The sample was extracted from a mailing list of the GAELIC User Education Workgroup. Each and every name had fair chance of being selected as mailing was done to all the team members. The sample results will only be generalised to the GAELIC member institutions.

5.2  Data collection technique

5.2.1  Design of the questionnaire

5.2.1.1  Purpose

A researcher designed questionnaire was used to measure the opinions of instruction librarians on the required competencies in the emerging field of information literacy skills instruction. From the opinions registered, the overall perceptions towards the required competencies were inferred.

5.2.1.2  Physical format

For convenience and ease of reference to the respondents, the online questionnaire was in English (Appendix 1)

5.2.1.3  Length

The online questionnaire comprised twenty four questions. As a result of the pre-test (cf. 5.2.3), the respondents indicated that the online questionnaire took fifteen minutes, on average, to complete. Only one out of thirteen thought it was too long.

5.2.1.4  Terminology

There are two basic considerations that apply when constructing survey questions. Firstly, the wording must be unambiguous for the respondent and secondly, the questions should enable accurate replies to be communicated to the researcher (Babbie 2005: 265 and Fowler 1993: 102). In this study this considerations were made during the pre-test phase (cf. 5.2.3.3).
5.2.1.5 Types of questions

Survey instruments are guided by two types of questions, namely close-ended and open-ended or pre-coded, structured or unstructured (Babbie 1990: 127 - 128). In open-ended questions respondents are asked to provide their own answers to the question. The close-ended structure was predominantly used in the online questionnaire administered in this study. In questions 9 to 24, a response of >other or specify= was included with the ranked responses.

5.2.1.6 Instructions

Since the online questionnaire was self-administered by the respondents, it was important to ensure that the instructions were clear and unambiguous. A number of these problems were resolved at the pre-test phase (cf. 5.2.3.3). Bold typeface and italics was used for every instruction. An example was also placed at the start of the questionnaire to illustrate the desired method of reply to the ranked responses.

5.2.2 Questionnaire Pre-test

5.2.2.1 Definition

In empirical research, it is expected of researchers to conduct some form of testing of the research design prior to the major research effort (Babbie 2005:265). The purpose of a pre-test is to find out how the data collection protocols and the survey instrument work under realistic conditions (Babbie 2005:265).

Two types of testing can be distinguished, namely pre-tests and pilot studies. Pre-tests are concerned with the testing of one or more aspects of the research design, while a pilot study is a dress rehearsal of the whole study design (Babbie 1990:220; Fowler 1993: 100 - 103; Neale and Liebert 1986:152).

A preliminary draft of the questionnaire was tested before the instrument was considered sufficiently reliable for distribution. A week prior to the electronic mailing of the questionnaire, a draft questionnaire was administered to a small group of subjects as a pre-test with the aim of refining the survey instrument.
5.2.2.2 Selection of the subjects

A characteristic of a pre-test is that the participants do not constitute a representative sample. An attempt should be made to achieve the broadest range of potential respondents. However, subjects should include both expert researchers as well as representatives similar to the survey population (Babbie 1990:222; Babbie 2005: 265 and Fowler 1993:102).

This approach was adopted for the pre-test in the present study. The first category comprised an opinion group of six curriculum designers with knowledge of empirical research and survey instruments. The questionnaires were completed by five respondents and returned with comments.

In order to include subjects similar to the survey population, eight information professionals who are trainers were approached. This was done because it was relatively easy to contact these subjects via e-mail (electronic mail). Furthermore, it was assumed that, as colleagues in training, the respondents would make meaningful comments about the content of the questionnaire. 13 surveys were completed by this group (see Table 5-1).

### Table 5-1: Distribution of pre-test questionnaire to Curriculum/Course developer's and information professionals

<table>
<thead>
<tr>
<th>Support departments</th>
<th>Number of questionnaires</th>
<th>Completed questionnaires</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unisa: Institute for Curriculum and Learning Development (ICLD) (Curriculum developers)</td>
<td>6</td>
<td>5</td>
</tr>
<tr>
<td>Unisa Library (Information professionals)</td>
<td>8</td>
<td>8</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>14</strong></td>
<td><strong>13</strong></td>
</tr>
</tbody>
</table>
5.2.2.3 Administering the pre-test

Each subject received a draft online questionnaire with a covering letter explaining the purpose of the study (Appendix 1 and 2). In addition, the respondents were requested to provide comments on six points about the instrument:

- The time it took to complete the questionnaire
- Whether any important questions had been left out
- If there were any superfluous items which could be omitted
- Whether there were any ambiguous or unclear questions
- Criticisms and suggestions on the format were encouraged
- Comments about the questionnaire as a whole were requested (Babbie 2005:265 and Fowler 1993:102).

5.2.2.4 Response

The total, 13 (6 from learner developers and 8 from information professionals) questionnaires were completed and returned with suggestions. The average time to answer the survey was fifteen minutes. Since only one respondent thought it was too long, it was decided to retain the original length and format. As a result of comments relating to ambiguity, several questions were modified. Questions were clustered according to categories including the explanation in the use of instructions to answer the questions.

5.3 Data collection

In the research process, a researcher must make a decision with regard to the way in which the data will be collected. A distinction is made between the data collection technique step from data collection. The former is concerned with the design of the questionnaire and the scaling methods used to measure the construct under investigation. The latter step, which forms the focus of (c.f.5.3.1), explains the administration of the instrument to gather the survey data as well as the procedures followed to extract the data from the completed questionnaires for analysis and testing (Fowler 1993:54).
5.3.1 Administering the online questionnaire

Three steps were involved in administering the online questionnaire for this study. Firstly, a covering letter was written and signed by the study promoter as part of the stipulation by the University of Johannesburg (Appendix 2). The letter was incorporated as an electronic (MSWord) attachment. It explained the purpose of the investigation as well as the scope of the survey population. The brevity of the respondent=s task was emphasised as was the deadline return date. The letter assured the anonymity of the subject (Babbie 1990:342 and Babbie 2005: 266).

The second step was to e-mail the survey to the sample of 67 subjects in September 2005 with a return deadline date set for approximately one week. Step three involved the follow-up procedures of the survey. After the deadline expired for the initial set of online questionnaires, a second follow-up was e-mailed to sample subjects who, according to the sampling frame, had not returned the electronic questionnaire by e-mail by the deadline date. A reminder notice further acknowledged those who submitted the online questionnaires (Nardi 2003:111 - 112).

Monitoring the response rate is an important activity in the data collection phase of survey research. The timing of follow-up mailings is important. A week is regarded as reasonable space between electronic mailings (e-mail) (Babbie 2005: 280 - 281). Indications in the literature suggest that with a mail-distributed questionnaire, response rate of at least 50% is generally considered adequate for analysis and reporting. A response rate of at least 60% percent is considered good, and a response rate of at least 70% percent or more is very good. Although, it is expressed that these figures are rough guides, and have no statistical basis. However, a demonstrated lack of response bias is considered far more important than a high response rate (Babbie 1990:180 - 183). After two follow-up exercises were initiated, a total of 43 questionnaires were returned of which 1 was rejected due to insufficient data. The final response rate was 64.18% which represented 42 completed questionnaires. Table 5-2 is a summary of the response rate of completed electronic questionnaires as a result of two e-mails to the sample subjects.
Table 5.2: Response rate of completed electronic questionnaires

<table>
<thead>
<tr>
<th>Sample</th>
<th>Total number</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Response rate:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Completed questionnaires</td>
<td>38</td>
<td></td>
</tr>
<tr>
<td>Initial mailing</td>
<td>43</td>
<td></td>
</tr>
<tr>
<td>Follow-up</td>
<td></td>
<td></td>
</tr>
<tr>
<td>TOTAL</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rejected questionnaires</td>
<td>1</td>
<td></td>
</tr>
</tbody>
</table>

5.3.2 Data reduction and processing

5.3.2.1 Analysing the survey forms

Once the completed online questionnaires were returned through e-mail or sent by internal mail system, it was necessary for the data to be extracted and collated in some form of analysis, testing and interpretation. As the online questionnaires arrived, each one was printed and checked to ensure that the subject had completed sufficient data for inclusion and a number was assigned to each questionnaire to avoid printing duplication. Printed questionnaires were submitted to STATKON Statistical Consultation Service at the University of Johannesburg for analysis and testing. The Statistical Package for the Social Sciences (SAPSS) was used to analyse and extract the raw data..

5.3.2.2 Descriptive statistics

5.3.2.2.1 Biographical details and related variables

The profile of the sample in terms of the independent variables measured in Questions 1 - 8 of the questionnaire is presented in Table 5-3 to 5-10.
Sample results: Biographical details (Questions 1 - 8)

Table 5- 3:

<table>
<thead>
<tr>
<th>Gender</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valid</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>10</td>
<td>23.8</td>
</tr>
<tr>
<td>Female</td>
<td>32</td>
<td>76.2</td>
</tr>
<tr>
<td>Total</td>
<td>42</td>
<td>100.0</td>
</tr>
</tbody>
</table>

As Table 5-3 indicates there were 76.2% (n=32) females and 23.8% (n=10) males in the sample returns. This distribution indicates an uneven ratio of women to men found in the total GAELIC institutions. The assumption is that there are fewer males entering the Library and Information Science profession or males are holding management positions and are not involved in operational issues.

Table 5-4

<table>
<thead>
<tr>
<th>Age</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valid</td>
<td></td>
<td></td>
</tr>
<tr>
<td>31 to 40</td>
<td>15</td>
<td>35.7</td>
</tr>
<tr>
<td>41 to 50</td>
<td>13</td>
<td>31.0</td>
</tr>
<tr>
<td>51 and above</td>
<td>14</td>
<td>33.3</td>
</tr>
<tr>
<td>Total</td>
<td>42</td>
<td>100.0</td>
</tr>
</tbody>
</table>

In Table 5-4 the age distribution of the sample; the librarians involved in information literacy instruction, 35.7% (n=15) were in the age group 31 - 40 years followed by 33.3% (n=14) in the 51 and above category. A slight margin was the 41 - 50 category with 31.0% (n=13). This indicates a balance in the young librarians being actively involved in instruction and the assumption that the 51 and above category share their expertise with the 31 - 40 category. There is a relative balance in the age categories and this opens instructional challenges with regard to the diverse student population found in the higher education landscape.
In terms of the category highest qualification (Table 5-5) in any field, 40.5% (n=17) had Honours degrees in any subject field; 31.0% (n=13) had masters degrees in a field other than library and information science and 16.7% (n=7) had Bachelors degrees. These frequencies suggest that some librarians had an honours or masters degree in any subject field for them to be able to have subject matter expertise in their particular roles, especially for those who are also regarded as Subject or Information Librarians. (see job title category Q8).

In terms of the category highest qualification in information science (Table 5-6), 37.5% (n=15) indicated that they had an Honours; 25.0% (n=10) had a Masters and 20.0% (n=8) had a Bachelors qualification in library and information science. These frequencies are in sharp contrast to Table 5-5, these findings suggests that librarians prefer to have an honours or masters degree in any subject field to be able to have subject matter expertise other than follow the traditional library and information science curricular. The other assumption is that the library and information science discipline and curricular is not flexible to allow for mobility across curricular.
Table 5-7

<table>
<thead>
<tr>
<th>Years experience in an academic library</th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valid</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 to 5</td>
<td>2</td>
<td>4.8</td>
<td>4.9</td>
</tr>
<tr>
<td>6 to 10</td>
<td>4</td>
<td>9.5</td>
<td>9.8</td>
</tr>
<tr>
<td>&gt; 10</td>
<td>35</td>
<td>83.3</td>
<td>85.4</td>
</tr>
<tr>
<td>Total</td>
<td>41</td>
<td>97.6</td>
<td>100.0</td>
</tr>
<tr>
<td>Missing</td>
<td>System</td>
<td>1</td>
<td>2.4</td>
</tr>
<tr>
<td>Total</td>
<td>42</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>

With regard to the number of years experience in an academic library (Table 5-7), 85.4% (n=35) of the respondents had more than ten years experience. This finding assumes that the subjects are conversant with the client profile and are comfortable with their roles or functions they perform.

Table 5-8

<table>
<thead>
<tr>
<th>Years experience in information literacy instruction or training</th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valid</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0</td>
<td>4</td>
<td>9.5</td>
<td>10.0</td>
</tr>
<tr>
<td>1 to 5</td>
<td>9</td>
<td>21.4</td>
<td>22.5</td>
</tr>
<tr>
<td>6 to 10</td>
<td>13</td>
<td>31.0</td>
<td>32.5</td>
</tr>
<tr>
<td>&gt; 10</td>
<td>14</td>
<td>33.3</td>
<td>35.0</td>
</tr>
<tr>
<td>Total</td>
<td>40</td>
<td>95.2</td>
<td>100.0</td>
</tr>
<tr>
<td>Missing</td>
<td>System</td>
<td>2</td>
<td>4.8</td>
</tr>
<tr>
<td>Total</td>
<td>42</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>

The number of years experience in information literacy instruction or training (Table 5-8), the sample results showed that 35.0% (n=14) had more than ten years, 32.5% (n=13) had experience of between six to ten years, followed by 22.5% (n=9) of between one to five years experience. This frequency suggests that librarians are involved in information literacy instruction even though they received no formal training at the library and information science schools and they learned everything through trial and error. The other assumption is that there is a need for the role of an instruction librarian and academic library employers are aware of the need to training students in information literacy skills. Lastly, information literacy instruction is perceived to be a specialised field and attracts librarians who are comfortable standing in front of a training session.
Table 5-9 accounted for the participating member libraries of GAELIC. 54.8% (n=23) of the respondents with the highest frequency are from the University of South Africa Pretoria Campus; 14.3% (n=6) University of South Africa Florida Campus, and the lowest response of between 7.1% (n=3) and 2.4% (n=1) represented the other 8 institutions. The assumption is that the size of the library has an influence on the number of staff appointed to perform the training role. Frequency observations indicate that an institution has a librarian responsible for training and other librarians are called in to assist if and when the need arises.
Table 5-10: Reported job titles used at different libraries

<table>
<thead>
<tr>
<th>Job title</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bibliographic Standards</td>
<td>1</td>
<td>2.4</td>
</tr>
<tr>
<td>Cataloguer</td>
<td>1</td>
<td>2.4</td>
</tr>
<tr>
<td>Cataloguer Head</td>
<td>1</td>
<td>2.4</td>
</tr>
<tr>
<td>Curriculum Designer</td>
<td>1</td>
<td>2.4</td>
</tr>
<tr>
<td>Co-ordinator</td>
<td>1</td>
<td>2.4</td>
</tr>
<tr>
<td>Deputy Director</td>
<td>1</td>
<td>2.4</td>
</tr>
<tr>
<td>Head Client Service</td>
<td>1</td>
<td>2.4</td>
</tr>
<tr>
<td>Head Co-ordinator</td>
<td>1</td>
<td>2.4</td>
</tr>
<tr>
<td>Head Library Information</td>
<td>1</td>
<td>2.4</td>
</tr>
<tr>
<td>Head Soshanguve North</td>
<td>1</td>
<td>2.4</td>
</tr>
<tr>
<td>Information Desk Librarian</td>
<td>1</td>
<td>2.4</td>
</tr>
<tr>
<td>Information Librarian</td>
<td>3</td>
<td>7.1</td>
</tr>
<tr>
<td>Information Literacy</td>
<td>1</td>
<td>2.4</td>
</tr>
<tr>
<td>Information Specialist</td>
<td>1</td>
<td>2.4</td>
</tr>
<tr>
<td>Law Librarian</td>
<td>1</td>
<td>2.4</td>
</tr>
<tr>
<td>Lecturer</td>
<td>1</td>
<td>2.4</td>
</tr>
<tr>
<td>Librarian</td>
<td>2</td>
<td>4.8</td>
</tr>
<tr>
<td>Manager Information</td>
<td>1</td>
<td>2.4</td>
</tr>
<tr>
<td>Senior Information Librarian</td>
<td>2</td>
<td>4.8</td>
</tr>
<tr>
<td>Senior Information Librarian</td>
<td>1</td>
<td>2.4</td>
</tr>
<tr>
<td>Senior Librarian</td>
<td>1</td>
<td>2.4</td>
</tr>
<tr>
<td>Subject Librarian</td>
<td>12</td>
<td>28.6</td>
</tr>
<tr>
<td>Subject Reference Librarian</td>
<td>2</td>
<td>4.8</td>
</tr>
<tr>
<td>Team Leader</td>
<td>1</td>
<td>2.4</td>
</tr>
<tr>
<td>User Empowerment</td>
<td>1</td>
<td>2.4</td>
</tr>
<tr>
<td>Web Developer</td>
<td>1</td>
<td>2.4</td>
</tr>
<tr>
<td>Valid</td>
<td>42</td>
<td>100.0</td>
</tr>
</tbody>
</table>

In terms of the category job titles used at different libraries to refer to a librarian involved in information literacy skills instruction, 28.6% (n=12) indicated in the job title category that they are referred to as subject librarians in contrast to an overwhelming majority of 2.4% (n=30) who are assigned different job titles. This result reflects the trend in GAELIC institutions that there is no standard job title for a librarian involved or responsible for instruction. The assumption might be that an institution assigns a job title with no regard of the skills and knowledge required in an instruction role.
5.3.2.3 Analysis of the sample data

5.3.2.3.1 Design of the data analysis procedure

A methodology for testing and analysing the data extracted from the completed questionnaires was specifically designed to suit the requirements of this investigation by STATKON Statistical Consultation Service at the University of Johannesburg. The (SPSS) Statistical package for the Social Sciences was used to extract data from the completed questionnaires.

5.4 Summary

This chapter has outlined the empirical study carried out to assess the opinions of instruction librarians on the required competencies in the emerging field of information literacy skills instruction. Survey research, using an online questionnaire, forms the framework of the research design to test the problem statement stated in Chapter one. Having defined the survey population, the sampling procedures followed in this study are explained. The section on data collection technique describes the design, pre-testing and administering of the survey instrument.

Finally, the process for extracting the data from the completed online questionnaires for analysis and interpretation is briefly described. In the following chapter, the raw data will be analysed and the findings interpreted.
CHAPTER 6

ANALYSIS OF THE DATA

The purpose of this study is to explore the challenges experienced by academic information professionals participating in the teaching of information literacy programmes in support of lifelong learning and, whether they have the skills and knowledge to make the programme a success and add value to the throughput and retention rate of students. This chapter is concerned with the research data collected and extracted from the online questionnaires which were completed by 42 respondents.

In order to present the findings in a meaningful way, the chapter presents the statistical analysis of the research results. For proper analysis of the data, the online questionnaire was analysed in three ways. Firstly data derived from parts of the questionnaire related to the frequency of statements (Questions 9 - 14). Secondly data derived from ranking order opinions (Questions 15 - 24) and lastly an analysis of the strength of association between identified variables is presented using tables of correlation coefficients which were calculated in terms of relations.

In this study, a statistical analysis of the research data is used for two reasons. Firstly to describe the data collected in the online questionnaire and secondly, as a means to make inferences, based on the sample data, about the survey population as a whole.

Within the four sections, the standard statistical procedures followed are described and the results presented in tabular form. Only the results which are of statistical significance or are of an idiosyncratic nature are reported. The results obtained and presented will be discussed in terms of the aim and assumptions which motivated this study.

6.1 Terminology

In order to report the research findings, the most important statistical terms which are employed throughout the discussion are defined as they are understood and used in this study.
6.1.1 Correlation coefficient

Coefficients are calculated if the researcher is interested in the strength of an association. They range in value from 0.0 to 1.0. The closer a coefficient it is to 1.0, the stronger the association. The closer a coefficient is to 0.0, the weaker the relationship. A correlation can be either positive, indicating an association, or inverse (negative) indicating no association. The correlation used in this study was the Kendall tau-b. (Nardi 2003:149 – 152).

6.1.2 Descriptive statistics

It is a method used to describe a sample population in numerical or graphical form. (Nardi 2003: 115 – 125).

6.1.3 Frequency distribution

This is a representation which indicates the number of times that each response score was obtained. (Nardi 2003: 116).

6.1.4 Inferential statistics

These determine the manner in which the results, based on the sample, can be generalised to the survey population. (Nardi 2003: 93).

6.1.5 Dependent variable

This is the variable of interest to the researcher and it varies in accordance with the independent variable. (Nardi 2003:36 – 38).

6.1.6 Independent variable

This is the variable usually outside of the control of the researcher, in terms of which the dependent variable is studied (Nardi 2003: 36 – 38).
6.1.7 Nominal measures

Nominal measurement is the simplest least and least useful statistically. It involves the assignment of numerals to objects without having a value meaning, for example the responses 'yes' or 'no' which can be collapsed to a value of 0 and 1. (Nardi 2003:44 – 45).

6.1.8 Ordinal measures

Ordinal measurement generates rank-order statements about a variable. When the category values for a variable are in a sequence, the measurement is considered an ordinal variable. Ordinal measurement consists of scaled responses about a construct that can be arranged by rank or value on a continuum. Each statement has a mathematical meaning such as 'more' or 'less'.(Nardi 2003:45).

6.2 Descriptive statistics

6.2.1 Opinion measurement and related variables (Questionnaire questions 9 - 14)

Part two of the Questionnaire (questions 9 - 14) was concerned with the opinions of the instruction librarians towards their role in information literacy instruction in an academic information service. The sample results were examined individually using the YES/NO frequency tables of the opinion results. These are presented in Tables 6-2a to 6-2f.

Sub-problem: The unique challenges that instruction librarians must be able to understand to be able to create a meaningful information literacy environment
Table 6-2a: Question 9: "What do you consider to be the role of a (conventional) librarian in general in an academic library?"

<table>
<thead>
<tr>
<th></th>
<th>Yes</th>
<th>No</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Expert</td>
<td>26</td>
<td>5</td>
<td>31</td>
</tr>
<tr>
<td>%</td>
<td>83.9%</td>
<td>16.1%</td>
<td>100.0%</td>
</tr>
<tr>
<td>Coach</td>
<td>27</td>
<td>5</td>
<td>32</td>
</tr>
<tr>
<td>%</td>
<td>84.4%</td>
<td>15.6%</td>
<td>100.0%</td>
</tr>
<tr>
<td>Guide</td>
<td>29</td>
<td>2</td>
<td>31</td>
</tr>
<tr>
<td>%</td>
<td>93.5%</td>
<td>6.5%</td>
<td>100.0%</td>
</tr>
<tr>
<td>Service Provider</td>
<td>41</td>
<td></td>
<td>41</td>
</tr>
<tr>
<td>%</td>
<td>100.0%</td>
<td></td>
<td>100.0%</td>
</tr>
<tr>
<td>Facilitator</td>
<td>24</td>
<td>7</td>
<td>31</td>
</tr>
<tr>
<td>%</td>
<td>77.4%</td>
<td>22.6%</td>
<td>100.0%</td>
</tr>
</tbody>
</table>

An overwhelming 100.0% (n=41) of the respondents in the sample indicated that the service provider was the main role of a conventional librarian in general in an academic library, followed by 93.5% (n=29) of being a guide.

The results indicated an overwhelming majority of respondents to view the conventional role of a librarian in general to be that of a service provider. The generic role of a librarian is foremost of providing service to the library clients. The assumption is that librarians are conversant with the traditional role of libraries.

Table 6-2b: Question 10: "What is the role of an instruction librarian in an academic library?"

<table>
<thead>
<tr>
<th></th>
<th>Yes</th>
<th>No</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Teacher</td>
<td>36</td>
<td>3</td>
<td>39</td>
</tr>
<tr>
<td>%</td>
<td>92.3%</td>
<td>7.7%</td>
<td>100.0%</td>
</tr>
<tr>
<td>Mentor</td>
<td>26</td>
<td>6</td>
<td>32</td>
</tr>
<tr>
<td>%</td>
<td>81.3%</td>
<td>18.8%</td>
<td>100.0%</td>
</tr>
<tr>
<td>Coach</td>
<td>30</td>
<td>2</td>
<td>32</td>
</tr>
<tr>
<td>%</td>
<td>93.8%</td>
<td>6.3%</td>
<td>100.0%</td>
</tr>
<tr>
<td>Motivator</td>
<td>26</td>
<td>4</td>
<td>30</td>
</tr>
<tr>
<td>%</td>
<td>86.7%</td>
<td>13.3%</td>
<td>100.0%</td>
</tr>
<tr>
<td>Facilitator</td>
<td>30</td>
<td>4</td>
<td>34</td>
</tr>
<tr>
<td>%</td>
<td>88.2%</td>
<td>11.8%</td>
<td>100.0%</td>
</tr>
</tbody>
</table>

93.8% (n=30) of the respondents indicated that the instruction librarian assumed a role of a
coach, whereas a margin of 92.3% (n=36) indicated the role of a teacher. These results reflect that a difference of 1.5% agrees to the coach/teacher role as being of paramount importance.

The results indicated a difference between the role of a coach and a teacher role an instruction librarian is supposed to play. The role of a coach was given more prominence to that of a teacher. This is consistent with the finding by Training Post (2004:5) that depending on the learning situation, the instructor will be involved in all or some of these teaching roles at different times (c.f.3.4). The observation is that librarians perceive themselves as educators even though they have no formal training in pedagogy.

**Table 6-2c: Question 11: "What should distinguish the job of an instruction librarian from that of a conventional librarian?"

<table>
<thead>
<tr>
<th></th>
<th>Yes</th>
<th>No</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Structured face-to-face sessions</td>
<td>35</td>
<td></td>
<td>35</td>
</tr>
<tr>
<td>%</td>
<td>100.0%</td>
<td></td>
<td>100.0%</td>
</tr>
<tr>
<td>Structured group sessions</td>
<td>38</td>
<td></td>
<td>38</td>
</tr>
<tr>
<td>%</td>
<td>100.0%</td>
<td></td>
<td>100.0%</td>
</tr>
<tr>
<td>Online tutorials</td>
<td>30</td>
<td>5</td>
<td>35</td>
</tr>
<tr>
<td>%</td>
<td>85.7%</td>
<td>14.3%</td>
<td>100.0%</td>
</tr>
<tr>
<td>One-on-one consultations</td>
<td>24</td>
<td>8</td>
<td>32</td>
</tr>
<tr>
<td>%</td>
<td>75.0%</td>
<td>25.0%</td>
<td>100.0%</td>
</tr>
<tr>
<td>Point-of-need guidance at the reference desk</td>
<td>19</td>
<td>9</td>
<td>28</td>
</tr>
<tr>
<td>%</td>
<td>67.9%</td>
<td>32.1%</td>
<td>100.0%</td>
</tr>
</tbody>
</table>

100.0% (n=38) of the respondents gave equal value to both structured face-to-face sessions and structured group sessions 100% (n=35), followed by 85.7% (n=30) of online tutorials as the distinguishing components of an instruction librarian’s job. This relates closely to the trend which shows that instruction librarians prefer to facilitate information literacy sessions in a traditional classroom environment.

The results indicated significant differences between what training format distinguishes instruction librarian from a conventional librarian. Instruction librarians are interested in methods of teaching that work best with students, especially in an electronic or traditional classroom so as to encourage active learning. This is consistent with Cudiner and Harmon (2001:52) findings that both online tutorial, guided hands-on method and lecture format which is
almost exclusively based on either format, have an active learning component. Ren (2000:323 - 327) observed that a combination of presentation methods was a worthy investment as it encourage students to adopt self-reliant search behaviours, and lead to a higher retention of concepts and mechanical skills (c.f.2.4.10). The assumption is that instruction librarians are comfortable in using either training format. They seem to prefer a structured environment which might reinforce the teacher role of route learning and being the leader and subject specialist in a classroom situation.

Table 6-2d: Question 12: "Whom do you teach / train?"

<table>
<thead>
<tr>
<th>Category</th>
<th>Yes</th>
<th>No</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Undergraduate students</td>
<td>29</td>
<td>2</td>
<td>31</td>
</tr>
<tr>
<td>%</td>
<td>93.5%</td>
<td>6.5%</td>
<td>100.0%</td>
</tr>
<tr>
<td>Postgraduate students</td>
<td>33</td>
<td>1</td>
<td>34</td>
</tr>
<tr>
<td>%</td>
<td>97.1%</td>
<td>2.9%</td>
<td>100.0%</td>
</tr>
<tr>
<td>Lecturing / teaching / academic staff</td>
<td>32</td>
<td>1</td>
<td>33</td>
</tr>
<tr>
<td>%</td>
<td>97.0%</td>
<td>3.0%</td>
<td>100.0%</td>
</tr>
<tr>
<td>Professional staff</td>
<td>27</td>
<td>3</td>
<td>30</td>
</tr>
<tr>
<td>%</td>
<td>90.0%</td>
<td>10.0%</td>
<td>100.0%</td>
</tr>
<tr>
<td>Support staff</td>
<td>25</td>
<td>5</td>
<td>30</td>
</tr>
<tr>
<td>%</td>
<td>83.3%</td>
<td>16.7%</td>
<td>100.0%</td>
</tr>
</tbody>
</table>

97.1% (n=33) of the respondents indicated that they teach postgraduate students and 97.0% (n=32) indicated that they teach lecturing/teaching/academic staff. By contrast, only 93.5% (n=29) of the sample indicated that they train undergraduate students. This suggests that the sample had instruction librarians who are subject specialists and their teaching roles might be assigned according to the users/client needs or the roles assigned according to the number of training librarians employed per institution.

The results indicated significant difference among the profile of the clients being trained. A significant observation is that students’ training was divided according to postgraduate and undergraduate. This suggests that librarians are assigned teaching roles according to the number of instruction librarians per institution or training session is separated according to the librarians’ workload. According to Gunter (2001:94) there is usually one instruction librarian whose main role is instruction in each library. It is then up to that one individual either to do all the teaching or to coordinate the efforts of others who are only ad hoc in instruction. It is also
not physically possible for a single person to reach and teach all students. Therefore, instruction librarians depend on other librarians whose skills and strengths are not in the realm of teaching, to carry some of the loads.

Table 6-2e: Question 13: Number of clients trained in the past 6 months?

<table>
<thead>
<tr>
<th>How many clients / library users have you trained in the past 6 months?</th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>4</td>
<td>9.5</td>
<td>10.5</td>
</tr>
<tr>
<td>25 to 50</td>
<td>11</td>
<td>26.2</td>
<td>28.9</td>
</tr>
<tr>
<td>51 to 100</td>
<td>7</td>
<td>16.7</td>
<td>18.4</td>
</tr>
<tr>
<td>101 to 200</td>
<td>6</td>
<td>14.3</td>
<td>15.8</td>
</tr>
<tr>
<td>200 +</td>
<td>10</td>
<td>23.8</td>
<td>26.3</td>
</tr>
<tr>
<td>Total</td>
<td>38</td>
<td>90.5</td>
<td>100.0</td>
</tr>
<tr>
<td>Missing System</td>
<td>4</td>
<td>9.5</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>42</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>

Almost one third (28.9%; n=11) of the respondents in the sample indicated that they trained between 25 to 50 library clients in the past six months. 26.3% (n=10) affirmed that they trained a total of more than 200 clients. However, 10.5% (n=4) respondents is missing in the system, indicating that the questionnaire did not give the option of a number of clients being trained between 0 to 25. The assumption is that instruction librarians who trained less than 25 clients had no category to place their options.

The results showed significant differences in the number of clients trained in the past six months of the study being undertaken. The variation in the number of trained students might be due to the growing diverse student population in institutions of higher learning, and instruction librarians are faced with unique challenges of having to deal with inter-group and individual differences during information literacy instruction sessions. This is consistent with the findings of O’Hair & Odell (1993:ix); Moore & Abson (2002:35); Hope et al. (2001:16) and Winfield & Manning (1992:183), which suggests that the academic libraries serve diverse user groups and instruction librarians are responsible for information literacy instruction sessions that represent students of different ages, racial and ethnic groups, language groups, religion, developmental stages, educational backgrounds and a polarity of skills that make it difficult for instruction librarians to pitch the information literacy session at the right level (c.f.2.2.1; 2.2.2; 2.2.3; 2.2.4; 2.2.5). However, instruction librarian’s are contributing to the teaching and learning process of
the academic institution in some way or another.
Table 6-2f: Question 14: "An instruction librarian can complement the role of lecturing and academic teaching staff in the following way:"

<table>
<thead>
<tr>
<th>Question</th>
<th>Yes</th>
<th>No</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Teaching critical thinking</td>
<td>26</td>
<td>7</td>
<td>33</td>
</tr>
<tr>
<td>%</td>
<td>78.8%</td>
<td>21.2%</td>
<td>100.0%</td>
</tr>
<tr>
<td>Encouraging knowledge thinking</td>
<td>36</td>
<td>3</td>
<td>39</td>
</tr>
<tr>
<td>%</td>
<td>92.3%</td>
<td>7.7%</td>
<td>100.0%</td>
</tr>
<tr>
<td>Developing a reading culture</td>
<td>33</td>
<td>2</td>
<td>35</td>
</tr>
<tr>
<td>%</td>
<td>94.3%</td>
<td>5.7%</td>
<td>100.0%</td>
</tr>
</tbody>
</table>

Of the replies, 94.3% (n=33) of the respondents indicated that the instruction librarians can complement the role of lecturing/academic staff by developing a reading culture whilst 92.3% (n=36) indicated encouraging knowledge thinking, and 78.8% (n=26) related to teaching critical thinking. It can be assumed that with 21.2% (n=7) of the respondents not in favour of librarians teaching critical thinking skills, that librarians must only teach about information sources and their locations and not about the evaluation thereof.

The results indicated no differences in the complementary role instruction librarians can assume in the teaching process. The overall relationship between teaching critical thinking, encouraging knowledge thinking and developing a reading culture found in this study confirms the views of Ward (2001:923); Stubley (2002:34); Moore & Abson (2002:35) and Herrington (1998:383) that during the beginning of information literacy instruction session focus should be on setting the tone and student concerns, teaching to challenge the unquestioned, relevance and on the “point of need” (c.f.2.4.12; 2.4.13; 2.4.14; 2.4.15; 1.4.16; 2.4.20).

The meaning to be derived from the analyses is that instruction librarians are using teaching methodologies during instruction and are not even aware that they do have some basic understanding of the learning principles.

6.2.2 The degree of importance of the instruction librarian qualities (Questions 15 - 24)

Part three of the questionnaire was concerned with the ranking of the degree of importance of certain qualities towards the role of the instruction librarian. The instruction for the sample respondents was to rank order the most or very important to the not important by placing the
number (4 - 1) next to the quality a respondent most preferred and continuing to the ones least important. Intensity is not measured (ordinal measure) as ranking tends not to tell the researcher how intense someone about a particular topic, only the order. The frequency tables are presented in Tables 6-3a to 6-3j.

**Table 6-3a: Question 15: "In my view, an instructional librarian should use: "**

<table>
<thead>
<tr>
<th></th>
<th>Not important</th>
<th>Somewhat important</th>
<th>Important</th>
<th>Very important</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>structured face-to-face sessions</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Count</td>
<td>8</td>
<td>9</td>
<td>25</td>
<td>42</td>
<td></td>
</tr>
<tr>
<td>%</td>
<td>19.0%</td>
<td>21.4%</td>
<td>59.5%</td>
<td>100.0%</td>
<td></td>
</tr>
<tr>
<td><strong>structured group sessions</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Count</td>
<td>5</td>
<td>9</td>
<td>28</td>
<td>42</td>
<td></td>
</tr>
<tr>
<td>%</td>
<td>11.9%</td>
<td>21.4%</td>
<td>66.7%</td>
<td>100.0%</td>
<td></td>
</tr>
<tr>
<td><strong>online tutorials</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Count</td>
<td>6</td>
<td>12</td>
<td>9</td>
<td>15</td>
<td>42</td>
</tr>
<tr>
<td>%</td>
<td>14.3%</td>
<td>28.6%</td>
<td>21.4%</td>
<td>35.7%</td>
<td>100.0%</td>
</tr>
<tr>
<td><strong>one-on-one consultations</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Count</td>
<td>5</td>
<td>8</td>
<td>11</td>
<td>18</td>
<td>42</td>
</tr>
<tr>
<td>%</td>
<td>11.9%</td>
<td>19.0%</td>
<td>26.2%</td>
<td>42.9%</td>
<td>100.0%</td>
</tr>
</tbody>
</table>

Structured group sessions and structured face-to-face sessions constituted two facilitation methods for which the instruction librarian ranked very favourably. 59.5% (n=25) of the respondents indicated structured face-to-face sessions as **very important** and 66.7% (n=28) show a strong positive bias in terms of structured group sessions.

There were significant differences with regard to the teaching methods an instruction librarian should use. Structured group session was considered to be a very important method of teaching followed by structured face-to-face sessions. The training method of using online tutorials was considered equally important. This is consistent with the three formats normally used in library instruction namely the lecture format, online tutorial and the guided hands-on format. Both the online tutorial and the guided hands-on methods and the lecture format which is exclusively based on either format, have an active learning component (Cudiner and Harmon 2001:49 - 51) (c.f.2.4.10). This is consistent with Quam (1998:79) finding that active learning is a technique that gets students to be reactive and participate in a classroom. Students with reference to this study are adult learners who are perceived to perform best when they are involved in a process of critical thinking (c.f.3.5).
Table 6-3b: Question 16: "In my experience as an instruction librarian, students prefer an instruction librarian who displays the following quality:"

<table>
<thead>
<tr>
<th></th>
<th>Not important</th>
<th>Somewhat important</th>
<th>Important</th>
<th>Very important</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>an expert to depend on</td>
<td>Count</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>5</td>
<td>11</td>
<td>24</td>
<td>41</td>
</tr>
<tr>
<td></td>
<td>%</td>
<td>2.4%</td>
<td>12.2%</td>
<td>26.8%</td>
<td>58.5%</td>
</tr>
<tr>
<td>a mentor who is not pushy</td>
<td>Count</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>8</td>
<td>7</td>
<td>14</td>
<td>12</td>
<td>41</td>
</tr>
<tr>
<td></td>
<td>%</td>
<td>19.5%</td>
<td>17.1%</td>
<td>34.1%</td>
<td>29.3%</td>
</tr>
<tr>
<td>a teacher they can rely on for</td>
<td>Count</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>future reference</td>
<td>3</td>
<td>2</td>
<td>9</td>
<td>27</td>
<td>41</td>
</tr>
<tr>
<td></td>
<td>%</td>
<td>7.3%</td>
<td>4.9%</td>
<td>22.0%</td>
<td>65.9%</td>
</tr>
<tr>
<td>an advisor</td>
<td>Count</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>5</td>
<td>14</td>
<td>18</td>
<td>41</td>
</tr>
<tr>
<td></td>
<td>%</td>
<td>9.8%</td>
<td>12.2%</td>
<td>34.1%</td>
<td>43.9%</td>
</tr>
</tbody>
</table>

Of the sample respondents who completed the questionnaire, 58.5% (n=24) agreed to an expert to depend on to be very important. Similarly, in terms of a teacher they can rely on for future reference 65.9% (n=27) and 43.9 (n=18) ranked this quality to be very important. By contrast, a mentor who is not pushy was ranked by 19.5% (n=8) of the respondents as not important criterion.

The results indicated significant differences in the qualities an instruction librarian must portray. Understanding adult learners is not an easy task and there are factors that have an influence on adult learners. This is evident from Quam (1998:70) that adult learners have different learning styles that reflect personal characteristics, attitudes toward learning, past experience and how learners have learned to learn. Adult learners are divided into five groups that have an influence in the way the relationships and perceptions are formed about instruction librarians.

The five groups are confident, pragmatic, goal-oriented learners; affective learners; learners-in-transition; integrated learners and risk takers (c.f.3.2.1 and 3.2.2).

The assumption indicates the maturity level of the students attending information literacy skills. The perception is that a student wants to be ‘mothered’ throughout the process and there is a sign of dependency in the relationship.
Table 6-3c: Question 17: “An instruction librarian would strive to develop in students”:

<table>
<thead>
<tr>
<th></th>
<th>Not important</th>
<th>Somewhat important</th>
<th>Important</th>
<th>Very important</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>self-reliant researcher</td>
<td>Count</td>
<td>2</td>
<td>4</td>
<td>4</td>
<td>32</td>
</tr>
<tr>
<td></td>
<td>%</td>
<td>4.8%</td>
<td>9.5%</td>
<td>9.5%</td>
<td>76.2%</td>
</tr>
<tr>
<td>a person who knows where to</td>
<td>Count</td>
<td>4</td>
<td>4</td>
<td>7</td>
<td>26</td>
</tr>
<tr>
<td>look for things</td>
<td>%</td>
<td>9.8%</td>
<td>9.8%</td>
<td>17.1%</td>
<td>63.4%</td>
</tr>
<tr>
<td>a skilled library user</td>
<td>Count</td>
<td>1</td>
<td>4</td>
<td>8</td>
<td>28</td>
</tr>
<tr>
<td></td>
<td>%</td>
<td>2.4%</td>
<td>9.8%</td>
<td>19.5%</td>
<td>68.3%</td>
</tr>
<tr>
<td>an empowered user</td>
<td>Count</td>
<td>5</td>
<td>1</td>
<td>4</td>
<td>30</td>
</tr>
<tr>
<td></td>
<td>%</td>
<td>12.5%</td>
<td>2.5%</td>
<td>10.0%</td>
<td>75.0%</td>
</tr>
</tbody>
</table>

In response to this component of information literacy instruction, 76.2% (n=32) answered that the self-reliant researcher was very important. An empowered user was ranked by 75% (n=30) as very important. 68.3% (n=28) ranked a skilled library user and 63.4% (n=26) a person who knows where to look for things as very important in contrast to other components.

There was a relation amongst the components an instruction librarian strives to develop in students. This suggests that instruction librarians need to focus on helping the student become more independent in locating and retrieving information for lifelong learning. This is consistent with the objective of library instruction as proclaimed by the American Library Association (ALA) Conference of 1881, that of user independence and self-help (Herrington 1998:383) (c.f.2.4.20). This observation indicates that instruction librarians are aware of their commitment to lifelong learning and are in support of the principles governing information literacy practices.
Table 6-3d: Question 18: "An instruction librarian needs:"

<table>
<thead>
<tr>
<th></th>
<th>Not important</th>
<th>Somewhat important</th>
<th>Important</th>
<th>Very important</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>an understanding of the institution's teaching or learning frame</td>
<td>Count: 2</td>
<td>4</td>
<td>5</td>
<td>31</td>
<td>42</td>
</tr>
<tr>
<td>work or strategy</td>
<td>%: 4.8%</td>
<td>9.5%</td>
<td>11.9%</td>
<td>73.8%</td>
<td>100.0%</td>
</tr>
<tr>
<td>to engage in critical reflection of viewing information literacy as a holistic educational outcome based on transferable concepts and skills</td>
<td>Count: 3</td>
<td>12</td>
<td>27</td>
<td></td>
<td>42</td>
</tr>
<tr>
<td></td>
<td>%: 7.1%</td>
<td>28.6%</td>
<td>64.3%</td>
<td></td>
<td>100.0%</td>
</tr>
<tr>
<td>an understanding of students' academic requirements facilitated by study guides and the online learning environment</td>
<td>Count: 4</td>
<td>1</td>
<td>13</td>
<td>24</td>
<td>42</td>
</tr>
<tr>
<td></td>
<td>%: 9.5%</td>
<td>2.4%</td>
<td>31.0%</td>
<td>57.1%</td>
<td>100.0%</td>
</tr>
<tr>
<td>to make a conceptual shift from a library-centred view of information literacy as training to use specific information tools</td>
<td>Count: 5</td>
<td>5</td>
<td>14</td>
<td>18</td>
<td>42</td>
</tr>
<tr>
<td></td>
<td>%: 11.9%</td>
<td>11.9%</td>
<td>33.3%</td>
<td>42.9%</td>
<td>100.0%</td>
</tr>
</tbody>
</table>

Since the importance of being informed about the institutions teaching and learning strategy is critical in information literacy instruction, 73.8% (n=31) of the respondents viewed the understanding thereof to be **very important**. In terms of the need to engage in critical reflection of viewing information literacy as a holistic educational outcome based on transferable concepts 64.3% (n=27); understanding of students academic requirements 57.1% (n=24); conceptual shift to information literacy 42.9% (n=18) it should be noted that the respondents perceived this need to be **very important**. Only 2.4% (n=1) of the sample respondents ranked an understanding of the students’ academic requirements facilitated by study guides and the online learning environment as **somewhat important**. A possible explanation for the low ranking in online learning environment might be correlated to question (15) whereby 11.9% of the respondents indicated that the use of online tutorials in instruction is **not important**.

The results indicated significant differences in the components of information literacy that an instruction librarian must have the knowledge and understanding thereof. Learning implies a change of behaviour and belief. Therefore, the challenge for instruction librarians is in the use of teaching methods and approaches that model information literacy practices. The findings are consistent with Hinchliffe’s (2002:95) statement that instruction librarians need to understand who the students are, become critical and cautious thinkers, and engage in campus teaching events (c.f.2.3).
It can be assumed that with the transformation of the higher education landscape, instruction librarians are challenged to keep abreast with the developments, this will assist in the design and facilitation of the information literacy learning process.

**Table 6-3e: Question 19 "An instruction librarian involved in the teaching and learning process needs:"**

<table>
<thead>
<tr>
<th>Capability</th>
<th>Not important</th>
<th>Somewhat important</th>
<th>Important</th>
<th>Very important</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>capability to develop, deliver and evaluate information literacy programmes</strong></td>
<td>Count</td>
<td>3</td>
<td>2</td>
<td>37</td>
<td>42</td>
</tr>
<tr>
<td>%</td>
<td></td>
<td>7.1%</td>
<td>4.8%</td>
<td>88.1%</td>
<td>100.0%</td>
</tr>
<tr>
<td><strong>ability to design print instructional materials</strong></td>
<td>Count</td>
<td>4</td>
<td>6</td>
<td>10</td>
<td>22</td>
</tr>
<tr>
<td>%</td>
<td></td>
<td>9.5%</td>
<td>14.3%</td>
<td>23.8%</td>
<td>52.4%</td>
</tr>
<tr>
<td><strong>ability to design electronic instructional materials</strong></td>
<td>Count</td>
<td>2</td>
<td>10</td>
<td>9</td>
<td>21</td>
</tr>
<tr>
<td>%</td>
<td></td>
<td>4.8%</td>
<td>23.8%</td>
<td>21.4%</td>
<td>50.0%</td>
</tr>
<tr>
<td><strong>ability to integrate new electronic formats into the information literacy programmes</strong></td>
<td>Count</td>
<td>3</td>
<td>5</td>
<td>10</td>
<td>23</td>
</tr>
<tr>
<td>%</td>
<td></td>
<td>7.3%</td>
<td>12.2%</td>
<td>24.4%</td>
<td>56.1%</td>
</tr>
</tbody>
</table>

An overwhelming 88.1% (n=37) of the sample respondents indicated the capability to develop, deliver and evaluate information literacy programmes to be a **very important** quality; ability to integrate new electronic material very important with 56.1% (n=23). By contrast fewer respondents showed that the ability to design electronic instructional materials (4.8% n=2) and the ability to integrate new electronic formats into the information literacy programmes (7.3% n=3) were **not important**. It can be assumed that instruction librarians lack the knowledge and skills required by the virtual learning environment (VLE).

There were significant differences in the skills an instruction librarian needed to be able to deliver training material either in print or online. This shows that although there is a body of literature on the content of information literacy programmes, the instruction librarians need knowledge and understanding of the processes of materials development and design. Inglis (2003:247) is consistent with this finding that course development takes place in teams and its success depends on the members being able to work collaboratively (c.f.4.1.1; 4.1.2 and 4.1.3). Instruction librarians need personal development and training programmes that would teach them how to actually design information literacy course materials in either print or online mode. The assumption is that they have the capability to develop and design and evaluate learning materials and not get involved in the actual delivery of materials, which indicates the dire need for training.
Table 6-3f: Question 20: "The effectiveness of the instruction librarian's role requires knowledge of different learning styles and familiarity with a variety of teaching methods including:

<table>
<thead>
<tr>
<th></th>
<th>Not important</th>
<th>Somewhat important</th>
<th>Important</th>
<th>Very important</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>coaching</td>
<td>Count</td>
<td>1</td>
<td>9</td>
<td>18</td>
<td>42</td>
</tr>
<tr>
<td></td>
<td>%</td>
<td>2.4%</td>
<td>21.4%</td>
<td>42.9%</td>
<td>33.3%</td>
</tr>
<tr>
<td>facilitating</td>
<td>Count</td>
<td>3</td>
<td>8</td>
<td>11</td>
<td>20</td>
</tr>
<tr>
<td></td>
<td>%</td>
<td>7.1%</td>
<td>19.0%</td>
<td>26.2%</td>
<td>47.6%</td>
</tr>
<tr>
<td>learning contracts</td>
<td>Count</td>
<td>8</td>
<td>5</td>
<td>17</td>
<td>9</td>
</tr>
<tr>
<td></td>
<td>%</td>
<td>20.5%</td>
<td>12.8%</td>
<td>43.6%</td>
<td>23.1%</td>
</tr>
<tr>
<td>group teaching</td>
<td>Count</td>
<td>2</td>
<td>14</td>
<td>26</td>
<td>42</td>
</tr>
<tr>
<td></td>
<td>%</td>
<td>4.8%</td>
<td>33.3%</td>
<td>61.9%</td>
<td>100.0%</td>
</tr>
</tbody>
</table>

In response to this component of the learning styles and teaching methods, 61.9% (n=26) of the subjects indicated group teaching; 47.6% (n=20) facilitating to very important. Coaching is important 33.3% (n=14). In terms of the learning contracts as a teaching method, 43.6% (n=17) reported this variety of method to be important. It can be assumed that the instruction librarians lack the knowledge of the adult learning principles (c.f. Chapter 3).

There were significant differences in relation to the effectiveness of the instruction librarian’s role that require knowledge of different learning styles and familiarity with a variety of teaching methods. The rational explanation for group teaching to be considered very positively might be that group teaching is the only teaching format instruction librarians are familiar with, as they lack the necessary knowledge and skills in understanding the context and processes in which learning take place. This finding corroborates what Morrison et al. (2003:214) found in their study on the learning styles. They found that students are likely to have sensate, visual, and sequential learning styles. Of concern to educators intent in developing an effective teaching strategy, is that the teaching style is compatible to the students’ learning style (c.f.3.1).
Table 6-3g: Question 21: "An instruction librarian needs considerable experience in:"

<table>
<thead>
<tr>
<th>Table</th>
<th>Not important</th>
<th>Somewhat important</th>
<th>Important</th>
<th>Very important</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>advanced computer literacy</td>
<td>Count: 6</td>
<td>3</td>
<td>10</td>
<td>22</td>
<td>41</td>
</tr>
<tr>
<td>%</td>
<td>14.6%</td>
<td>7.3%</td>
<td>24.4%</td>
<td>53.7%</td>
<td>100.0%</td>
</tr>
<tr>
<td>database searching</td>
<td>Count: 1</td>
<td>10</td>
<td>30</td>
<td>41</td>
<td></td>
</tr>
<tr>
<td>%</td>
<td>2.4%</td>
<td>24.4%</td>
<td>73.2%</td>
<td>100.0%</td>
<td></td>
</tr>
<tr>
<td>internet searching</td>
<td>Count: 3</td>
<td>10</td>
<td>28</td>
<td>41</td>
<td></td>
</tr>
<tr>
<td>%</td>
<td>7.3%</td>
<td>24.4%</td>
<td>68.3%</td>
<td>100.0%</td>
<td></td>
</tr>
<tr>
<td>resources in electronic format</td>
<td>Count: 3</td>
<td>2</td>
<td>4</td>
<td>32</td>
<td>41</td>
</tr>
<tr>
<td>%</td>
<td>7.3%</td>
<td>4.9%</td>
<td>9.8%</td>
<td>78.0%</td>
<td>100.0%</td>
</tr>
</tbody>
</table>

Sample respondents indicated that considerable experience was very important in database searching (73.2% n=30); resources in electronic format (78.0% n=32); internet searching (68.3 n=28) and computer literacy (53.7% n=22) respectively. Of the respondents replying to advance computer literacy (14.6% n=6) regarded this component as not important. A possible explanation associated with this response might be the broad term used to describe the knowledge understanding and skill of computer software and hardware. Thus, the term might have been open to different interpretation by the subjects.

The results indicated significant differences between the required experiences in the knowledge and skill of computer skills, internet and database searching, and searching resources in electronic formats. There was also a positive relationship between the components. These interrelations show that the main challenge for instruction librarians is increased unrealistic user expectations. This is consistent with Stroyan (2000:40), Kaufman (2004:41) and Hope et al. (2001:7) findings that students expect to find everything online, even the less experienced internet searchers have higher expectations of finding information easy and fast. The instruction librarian must provide a value-added service and help students sort through their research needs and the Web (c.f.2.2.5; 2.2.6; 2.2.7 and 2.2.8). The assumption is that skills and knowledge of computer software and hardware are considered to have an influence in the facilitation of the training programmes.
Table 6-3h: Question 22: "An instruction librarian can contribute to the teaching and learning environment by:"

<table>
<thead>
<tr>
<th>Collaboration</th>
<th>Count</th>
<th>Not important</th>
<th>Somewhat important</th>
<th>Important</th>
<th>Very important</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Collaborating with teaching/academic departments in designing learning activities that promote student centred learning and foster lifelong learning</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>%</td>
<td></td>
<td>9.8%</td>
<td>14.6%</td>
<td>75.6%</td>
<td>100.0%</td>
<td></td>
</tr>
<tr>
<td>Collaborating in the development, design and evaluation of information literacy training materials with the institutions course design department</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>%</td>
<td></td>
<td>4.9%</td>
<td>36.6%</td>
<td>58.5%</td>
<td>100.0%</td>
<td></td>
</tr>
<tr>
<td>Collaborating with instruction librarians from other academic institutions</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>%</td>
<td></td>
<td>7.3%</td>
<td>29.3%</td>
<td>31.7%</td>
<td>100.0%</td>
<td></td>
</tr>
<tr>
<td>Fostering alliances and co-operative ventures within the institution</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>%</td>
<td></td>
<td>19.5%</td>
<td>12.2%</td>
<td>36.6%</td>
<td>31.7%</td>
<td>100.0%</td>
</tr>
</tbody>
</table>

In response to this component of the collaborative relationship that must be fostered by instruction librarians, 75.6% (n=31) of the subjects answered that it is very important to collaborate with academic/teaching departments in designing learning activities that promote lifelong learning. With regard to the collaboration in the development, design and evaluation of information literacy training materials with the institutions course design department, 58.5% (n=24) indicated that this component was very important; and 36.6% (n=15) indicated collaboration with course designers as important. In terms of collaborating with instruction librarians from other institutions, 31.7% (n=13) indicated this collaboration to be very important and important. By contrast, 36.6% (n=15) and 31.7 (n=13) of respondents accorded the component of fostering alliances and co-operative ventures within the institution as important and very important.

The results indicated significant differences between the fostering of collaborations. By contrast, there was also a positive relationship between collaboration with instruction librarians from other academic institutions, course design departments and the teaching and academic departments. These interrelationships shows that instruction librarians need support from their peers and a working relationship with the course designers is needed as course development takes place in teams and they can learn the required skills in materials development and design. This finding is consistent with Escobar Jr et al. (2002:346), Doskatch (2003:112), Rader
(2002:188), Jacobson (2001:313) and Crowther and Trott (2004:6 - 9) that collaboration outside the library is an excellent opportunity to build support, alliances, share collective expertise, and confidence in the way the academic library can contribute to the teaching and learning environment (c.f.4.3; 4.4; 4.5).

The assumption is that instruction librarians are ready to enter into relationships with relevant parties to bring the issue of information literacy on equal footing with academic literacy.

Table 6-3i: Question 23: Which of the non-technical competencies should an instruction librarian have?

<table>
<thead>
<tr>
<th>Non-technical competencies:</th>
<th>Not important</th>
<th>Somewhat important</th>
<th>Important</th>
<th>Very important</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>negotiation skills</td>
<td>Count</td>
<td>2</td>
<td>13</td>
<td>14</td>
<td>9</td>
</tr>
<tr>
<td></td>
<td>%</td>
<td>5.3%</td>
<td>34.2%</td>
<td>36.8%</td>
<td>23.7%</td>
</tr>
<tr>
<td>conflict resolutions skills</td>
<td>Count</td>
<td>5</td>
<td>14</td>
<td>16</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>%</td>
<td>12.8%</td>
<td>35.9%</td>
<td>41.0%</td>
<td>10.3%</td>
</tr>
<tr>
<td>organising skills</td>
<td>Count</td>
<td>1</td>
<td>15</td>
<td>26</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>%</td>
<td>2.4%</td>
<td>35.7%</td>
<td>61.9%</td>
<td>100.0%</td>
</tr>
<tr>
<td>teaching skills</td>
<td>Count</td>
<td>2</td>
<td>10</td>
<td>30</td>
<td>42</td>
</tr>
<tr>
<td></td>
<td>%</td>
<td>4.8%</td>
<td>23.8%</td>
<td>71.4%</td>
<td>100.0%</td>
</tr>
<tr>
<td>coaching skills</td>
<td>Count</td>
<td>4</td>
<td>23</td>
<td>15</td>
<td>42</td>
</tr>
<tr>
<td></td>
<td>%</td>
<td>9.5%</td>
<td>54.8%</td>
<td>35.7%</td>
<td>100.0%</td>
</tr>
<tr>
<td>facilitating skills</td>
<td>Count</td>
<td>3</td>
<td>4</td>
<td>13</td>
<td>22</td>
</tr>
<tr>
<td></td>
<td>%</td>
<td>7.1%</td>
<td>9.5%</td>
<td>31.0%</td>
<td>52.4%</td>
</tr>
<tr>
<td>critical thought</td>
<td>Count</td>
<td>3</td>
<td>11</td>
<td>25</td>
<td>39</td>
</tr>
<tr>
<td></td>
<td>%</td>
<td>7.7%</td>
<td>28.2%</td>
<td>64.1%</td>
<td>100.0%</td>
</tr>
<tr>
<td>analytical thinking</td>
<td>Count</td>
<td>2</td>
<td>12</td>
<td>25</td>
<td>39</td>
</tr>
<tr>
<td></td>
<td>%</td>
<td>5.1%</td>
<td>30.8%</td>
<td>64.1%</td>
<td>100.0%</td>
</tr>
<tr>
<td>strategic thinking</td>
<td>Count</td>
<td>3</td>
<td>13</td>
<td>22</td>
<td>38</td>
</tr>
<tr>
<td></td>
<td>%</td>
<td>7.9%</td>
<td>34.2%</td>
<td>57.9%</td>
<td>100.0%</td>
</tr>
</tbody>
</table>

Teaching skills constituted a non-technical competency for which the instruction librarian was rated as **very important** by 71.4% (n=30) of the respondents. Critical thought and analytical thinking constituted two skills that were rated equally and **very important** by 64.1% (n=25) of the respondents. Organising skills was rated as **very important** by 61.9% (n=26) of the subjects. By contrast, the negotiation skills was rated **somewhat important** (36.8% n=14) and conflict resolution skills rated **important** (41.0% n=16) and critical thought and analytical thinking **very important** by 64.1% (n=25) of the respondents. Coaching skills was rated by
54.8% (n=23) as important.

For the non-technical competencies there was a significant difference. The inter-correlation for the non-technical competencies yielded some statistically significant relationships in contrast to the personality attributes component. The interpretation of this relationship is that all the non-technical competencies identified are mutually exclusive and dependable. Instruction librarians need the entrepreneurial skills and knowledge to be able to form partnerships and communicate their respective goals and objectives in a proper way. Rockman (2002:193), Scales et al. (2005:234) and Rader (2001:14.5) corroborate the finding that for instruction librarian partnerships to be effective, they need to show entrepreneurship, creative ability, negotiate consensus, resolution of differences in their interaction with their collaboration partners (c.f.4.2.3; 4.2.4; 4.3; 4.4; 4.5).

The assumption is that instruction librarians must be friendly, relationship oriented, impatient, able to use appropriate approach to other people, and must structure tasks in logical processes as part of their behavioural indicators that must effect change.
Table 6-3j: Question 24: Which of the following personality attributes should an instruction librarian have?

<table>
<thead>
<tr>
<th>Personality attributes: interpersonal skills</th>
<th>Not important</th>
<th>Somewhat important</th>
<th>Important</th>
<th>Very important</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Count</td>
<td>2</td>
<td>12</td>
<td>28</td>
<td>6</td>
<td>42</td>
</tr>
<tr>
<td>%</td>
<td>4.8%</td>
<td>28.6%</td>
<td>66.7%</td>
<td>100.0%</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Personality attributes: communication (language skills)</th>
<th>Count</th>
<th>Somewhat important</th>
<th>Important</th>
<th>Very important</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Count</td>
<td>1</td>
<td>6</td>
<td>35</td>
<td>42</td>
<td></td>
</tr>
<tr>
<td>%</td>
<td>2.4%</td>
<td>14.3%</td>
<td>83.3%</td>
<td>100.0%</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Personality attributes: ability to explain</th>
<th>Count</th>
<th>Somewhat important</th>
<th>Important</th>
<th>Very important</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Count</td>
<td>1</td>
<td>4</td>
<td>35</td>
<td>40</td>
<td></td>
</tr>
<tr>
<td>%</td>
<td>2.5%</td>
<td>10.0%</td>
<td>87.5%</td>
<td>100.0%</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Personality attributes: outgoing personality</th>
<th>Count</th>
<th>Somewhat important</th>
<th>Important</th>
<th>Very important</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Count</td>
<td>6</td>
<td>11</td>
<td>10</td>
<td>14</td>
<td>41</td>
</tr>
<tr>
<td>%</td>
<td>14.6%</td>
<td>26.8%</td>
<td>24.4%</td>
<td>34.1%</td>
<td>100.0%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Personality attributes: approachable</th>
<th>Count</th>
<th>Somewhat important</th>
<th>Important</th>
<th>Very important</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Count</td>
<td>1</td>
<td>16</td>
<td>25</td>
<td>42</td>
<td></td>
</tr>
<tr>
<td>%</td>
<td>2.4%</td>
<td>38.1%</td>
<td>59.5%</td>
<td>100.0%</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Personality attributes: inspire confidence in the learner</th>
<th>Count</th>
<th>Somewhat important</th>
<th>Important</th>
<th>Very important</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Count</td>
<td>2</td>
<td>13</td>
<td>24</td>
<td>39</td>
<td></td>
</tr>
<tr>
<td>%</td>
<td>5.1%</td>
<td>33.3%</td>
<td>61.5%</td>
<td>100.0%</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Personality attributes: use of presentation apparatus</th>
<th>Count</th>
<th>Somewhat important</th>
<th>Important</th>
<th>Very important</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Count</td>
<td>2</td>
<td>4</td>
<td>8</td>
<td>25</td>
<td>39</td>
</tr>
<tr>
<td>%</td>
<td>5.1%</td>
<td>10.3%</td>
<td>20.5%</td>
<td>64.1%</td>
<td>100.0%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Personality attributes: time management</th>
<th>Count</th>
<th>Somewhat important</th>
<th>Important</th>
<th>Very important</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Count</td>
<td>5</td>
<td>14</td>
<td>20</td>
<td>39</td>
<td></td>
</tr>
<tr>
<td>%</td>
<td>12.8%</td>
<td>35.9%</td>
<td>51.3%</td>
<td>100.0%</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Personality attributes: lesson planning</th>
<th>Count</th>
<th>Somewhat important</th>
<th>Important</th>
<th>Very important</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Count</td>
<td>1</td>
<td>14</td>
<td>23</td>
<td>39</td>
<td></td>
</tr>
<tr>
<td>%</td>
<td>2.6%</td>
<td>2.6%</td>
<td>35.9%</td>
<td>59.0%</td>
<td>100.0%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Personality attributes: ability to deal with diverse user groups</th>
<th>Count</th>
<th>Somewhat important</th>
<th>Important</th>
<th>Very important</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Count</td>
<td>1</td>
<td>11</td>
<td>27</td>
<td>39</td>
<td></td>
</tr>
<tr>
<td>%</td>
<td>2.6%</td>
<td>28.2%</td>
<td>69.2%</td>
<td>100.0%</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Personality attributes: ability to learn constantly and quickly</th>
<th>Count</th>
<th>Somewhat important</th>
<th>Important</th>
<th>Very important</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Count</td>
<td>6</td>
<td>12</td>
<td>20</td>
<td>38</td>
<td></td>
</tr>
<tr>
<td>%</td>
<td>15.8%</td>
<td>31.6%</td>
<td>52.6%</td>
<td>100.0%</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Personality attributes: flexibility</th>
<th>Count</th>
<th>Somewhat important</th>
<th>Important</th>
<th>Very important</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Count</td>
<td>4</td>
<td>12</td>
<td>23</td>
<td>39</td>
<td></td>
</tr>
<tr>
<td>%</td>
<td>10.3%</td>
<td>30.8%</td>
<td>59.0%</td>
<td>100.0%</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Personality attributes: capacity for and desire to work both independently and in a team</th>
<th>Count</th>
<th>Somewhat important</th>
<th>Important</th>
<th>Very important</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Count</td>
<td>4</td>
<td>13</td>
<td>21</td>
<td>38</td>
<td></td>
</tr>
<tr>
<td>%</td>
<td>10.5%</td>
<td>34.2%</td>
<td>55.3%</td>
<td>100.0%</td>
<td></td>
</tr>
</tbody>
</table>

Communication (language skills) 83.3% (n=35) and the ability to explain constituted two personality attributes for which the instruction librarian was rated very important at 87.5% (n=35) respectively. Interpersonal skills 66.7% (28); use of presentation apparatus 64.1% (n=25); inspire confidence in the learner 61.5% (n=24); ability to deal with diverse user groups 69.2% (n=27); lesson planning and flexibility respondents of 59.0% (n=23) were rated to be very important. These responses confirmed findings in other research studies concerning the factors that influence students’ attitudes and perceptual value of information literacy instruction (cf. 2.2.2; 2.2.3).
The results indicated significant differences between the different personality attributes. The inter-correlation yielded some statistically significant relationships. Communication, ability to explain and ability to deal with diverse user groups showed a positive relationship. The explanation for this relationship is that students are comfortable with an instructor who is able to explain during the information literacy sessions and is sensitive to the needs of the diverse user groups. Language skills play an important role in information literacy instruction as the lesson may require the instructor to explain in a language understandable to the participants. This finding is corroborated by Hadaway et al. (1993:61 - 62), Cloud (1993:62 - 64), de Jager and Nassimbeni (2003:108) that ethnic and linguistic diversity is a dominant feature of academic institutions. Instruction librarians are cautioned to examine their cultural perspectives, attitudes, values and beliefs and determine what personality attributes they may bring into the instruction session (c.f.2.4.1; 2.4.3; 2.4.3).

The hypothesis is accepted that instruction librarians as teachers, experience a number of challenges in the teaching of information literacy skills. This is influenced by the lack of skills and knowledge in handling the student’s attitudes and perceptions toward information literacy instruction.

6.2.4 Correlation coefficients

In the present study, an attempt was made to examine the relationship between the various components of the skills and knowledge required by instruction librarians from the sample data collected, an attempt was made to measure the strength of association of the variables being assessed. The correlation of the variables calculated using the Kendall Tau-b statistics which assumes that there are the same number of rows and columns in the table. The coefficient calculated can only be interpreted in terms of strength (weak to strong / moderate to large) and direction (positive or negative / inverse relationship) (Nardi 2003:149 - 153). Although the correlation coefficients tended to vary by a few percent, the overall trends and conclusions of the study are therefore not affected.

In order to illustrate the results, the inter correlations relating to the different components of the instruction librarian competencies are recorded in Tables 6-4 to 6-13.
Table 6-4: Question 15: Inter correlations among teaching methods

<table>
<thead>
<tr>
<th>Use of teaching methods</th>
<th>q1</th>
<th>q2</th>
<th>q3</th>
<th>q4</th>
</tr>
</thead>
<tbody>
<tr>
<td>q1 structured face-to-face sessions</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>q2 structured group sessions</td>
<td>.133</td>
<td>1.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>q3 online tutorials</td>
<td>.083</td>
<td>.108</td>
<td>1.00</td>
<td></td>
</tr>
<tr>
<td>q4 one-on-one consultations</td>
<td>.472**</td>
<td>-.042</td>
<td>.136</td>
<td>1.00</td>
</tr>
</tbody>
</table>

**Correlation is significant at the 0.01 level (2-tailed)
p ≤ 0.01 (greater than)
n = 42

From Table 6-4, it can be seen that one-on-one consultations is moderately related to structured face-to-face (.472), and online tutorials (.136). Online tutorials were not significantly related to structured face-to-face sessions (.083), but had a small association with structured group sessions (.108). Structured group session had a small association with structured face-to-face (.133). This means that the inter relationship between a structured face-to-face sessions and one-on-one consultations are moderately correlated, and instruction librarians prefer contact sessions with their clients.

Table 6-5: Question 16: Inter correlations among instruction librarians’ qualities preferred by students:

<table>
<thead>
<tr>
<th>Qualities preferred by students</th>
<th>q1</th>
<th>q2</th>
<th>q3</th>
<th>q4</th>
</tr>
</thead>
<tbody>
<tr>
<td>q1 an expert to depend on</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>q2 a mentor who is not pushy</td>
<td>.332*</td>
<td>1.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>q3 a teacher they can rely on</td>
<td>.020</td>
<td>-.136</td>
<td>1.00</td>
<td></td>
</tr>
<tr>
<td>q4 an advisor</td>
<td>.363*</td>
<td>.327*</td>
<td>-.120</td>
<td>1.00</td>
</tr>
</tbody>
</table>

* Correlation is significant at the 0.05 level (2-tailed)
p ≤ 0.05 (greater than)
n = 41

In the case of the qualities the students prefer an instruction librarian to display, the correlations vary between .327, .332 and .363 which indicates the correlations are moderate. This means that an advisor (.363) was significantly related to an expert to depend on and a mentor who is not pushy (.327) and (.332) respectively. This moderate association indicates that students prefer instruction librarians who have the qualities of a person they can depend on, act as an advisor and foster a mentoring relationship.
Table 6-6: Question 17: Inter correlations among qualities an instruction librarian strive to develop in students:

<table>
<thead>
<tr>
<th>Qualities in students</th>
<th>q1</th>
<th>q2</th>
<th>q3</th>
<th>q4</th>
</tr>
</thead>
<tbody>
<tr>
<td>q1 self-reliant researcher</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>q2 person who knows where to look</td>
<td>.639**</td>
<td>1.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>q3 skilled library user</td>
<td>.220</td>
<td>.523**</td>
<td>1.00</td>
<td></td>
</tr>
<tr>
<td>q4 empowered user</td>
<td>.139</td>
<td>.279</td>
<td>.117</td>
<td>1.00</td>
</tr>
</tbody>
</table>

** Correlation is significant at the 0.01 level (2-tailed)
\( p \leq 0.01 \) (greater than)
n = 40

An interesting finding in relation to what qualities an instruction librarian strive to develop in students, is that the inter relationships were fairly **strong** and related to the self-reliant researcher. A skilled library user (.523) had a large relationship with a person who knows where to look for things (.639) and significantly related to a self-reliant researcher. This assumes that the instruction librarians’ expected outcomes when facilitating training is to develop in students a critical thinker and an independent information services user for lifelong learning.

Table 6-7: Question 18: Inter correlations among the qualities an instruction librarian needs in the execution of information literacy instruction:

<table>
<thead>
<tr>
<th>Qualities for IL instruction</th>
<th>q1</th>
<th>q2</th>
<th>q3</th>
<th>q4</th>
</tr>
</thead>
<tbody>
<tr>
<td>q1 understanding of institution’s teaching and learning framework</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>q2 viewing information literacy as a holistic educational outcome</td>
<td>.022</td>
<td>1.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>q3 understanding of student’s academic requirements</td>
<td>.395**</td>
<td>.268</td>
<td>1.00</td>
<td></td>
</tr>
<tr>
<td>q4 shift from library centred view of information literacy training</td>
<td>.328*</td>
<td>.269</td>
<td>.353</td>
<td>*1.00</td>
</tr>
</tbody>
</table>

** Correlation is significant at the 0.01 level (2-tailed)
\( p \leq 0.01 \) (greater than)
\* Correlation is significant at the 0.05 level (2-tailed)
\( p \leq 0.05 \) (greater than)
n = 42

From Table 6-7, it can be seen that the inter relationships vary between .328 and .395. The correlation of a conceptual shift from a library-centred view of information literacy as training to use specific information tools (.328), indicates a slightly **moderate** association with an understanding of the institution’s teaching and learning framework. By contrast, a shift from a library centred view of information training (.353) shows a **moderate** association with an understanding of the student’s academic requirements, which in turn has significantly modera

These
inter relationships means that it is imperative for instruction librarians to have an excellent understanding of their institution’s teaching, learning and research strategy as facilitated by the virtual learning environment.

Table 6-8: Question 19: Inter-correlations among competencies of an instruction librarian involved in teaching:

<table>
<thead>
<tr>
<th>Instruction librarian competencies</th>
<th>q1</th>
<th>q2</th>
<th>q3</th>
<th>q4</th>
</tr>
</thead>
<tbody>
<tr>
<td>q1 develop, deliver and evaluate information literacy programmes</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>q2 design print instruction materials</td>
<td>.247</td>
<td>1.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>q3 design electronic instructional materials</td>
<td>.206</td>
<td>.807**</td>
<td>1.00</td>
<td></td>
</tr>
<tr>
<td>q4 integrate new electronic formats into the information literacy programmes</td>
<td>.111</td>
<td>.498**</td>
<td>.623**</td>
<td>1.00</td>
</tr>
</tbody>
</table>

** Correlation is significant at the 0.01 level (2-tailed)
p < 0.01 (greater than)
n = 42

An interesting finding in relation to the competencies an instruction librarian need, is that all the inter-correlation coefficients were fairly large, that is .498 to .807 and significantly higher than those for all the other components of the skills and knowledge. The results showed the ability to integrate new electronic formats into the information literacy programmes (.498) to be significantly related to (.807) the ability to design electronic instructional materials. By contrast, a significant .623 correlation of the ability to integrate new electronic formats was fairly strong towards the variable ability to design electronic instructional materials. An extremely strong relationship was found between the variable (.807) the ability to design electronic material and the ability to design print instructional materials (1.00). These inter-relationships shows that instruction librarians are prepared to explore the virtual learning environment for the design of information literacy skills instructional materials.

Table 6-9: Question 20: Inter-correlations of the knowledge of different learning styles and teaching methods:

<table>
<thead>
<tr>
<th>Learning styles and teaching methods</th>
<th>q1</th>
<th>q2</th>
<th>q3</th>
<th>q4</th>
</tr>
</thead>
<tbody>
<tr>
<td>q1 coaching</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>q2 facilitation</td>
<td>.316*</td>
<td>1.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>q3 learning contracts</td>
<td>.344*</td>
<td>.288*</td>
<td>1.00</td>
<td></td>
</tr>
<tr>
<td>q4 group teaching</td>
<td>.037</td>
<td>.073</td>
<td>.372*</td>
<td>1.00</td>
</tr>
</tbody>
</table>

* Correlation is significant at the 0.05 level (2-tailed)
p < 0.05 (greater than)
n = 42
The results of the inter-correlations showed group teaching to be moderately associated to the learning contracts (.372). Learning contracts was moderately related to coaching (.344) and a small association with facilitation (.288). Facilitation had a moderate relation with coaching (.316). This means that the interrelationships among the learning styles and teaching methods are moderately associated. When facilitating information literacy instruction, in a group setting, the instruction librarian must establish a learning contract as a facilitation method.

Table 6-10: Question 21: Interrelationship among skills in which an instruction librarian should be highly experienced:

<table>
<thead>
<tr>
<th>Experience</th>
<th>q1</th>
<th>q2</th>
<th>q3</th>
<th>q4</th>
</tr>
</thead>
<tbody>
<tr>
<td>q1 advanced computer literacy</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>q2 database searching</td>
<td>.537**</td>
<td>1.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>q3 internet searching</td>
<td>.681**</td>
<td>.648**</td>
<td>1.00</td>
<td></td>
</tr>
<tr>
<td>q4 resources in electronic formats</td>
<td>.369*</td>
<td>.144</td>
<td>.435**</td>
<td>1.00</td>
</tr>
</tbody>
</table>

** Correlation is significant at the 0.01 level (2-tailed)
* Correlation is significant at the 0.05 level (2-tailed)

From Table 6-10, it can be seen that the inter-correlations vary between .369 and .681. Resources in electronic formats are moderately related to advanced computer literacy (.369) and internet searching (.435) with a significant moderate association. Internet searching was strongly related to advanced computer literacy (.681) and database searching (.648). Database searching had a significant large relation with advanced computer literacy. This means that instruction librarians must have a good knowledge and understanding of information and communication technology to be able to use the electronic resources. The strong association to advanced computer literacy might be due to the different understandings or interpretations of what the variable ‘advanced computer literacy’ might actually mean.
Table 6-11: Question 22: Inter-correlations among the collaborative contributions an instruction librarian can make to the teaching and learning environment:

<table>
<thead>
<tr>
<th>Collaborative contributions</th>
<th>q1</th>
<th>q2</th>
<th>q3</th>
<th>q4</th>
</tr>
</thead>
<tbody>
<tr>
<td>q1 collaborate with the teaching / academic departments</td>
<td></td>
<td></td>
<td></td>
<td>1.00</td>
</tr>
<tr>
<td>q2 collaborate with the institutions course design department</td>
<td>.460**</td>
<td>1.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>q3 collaborate with instruction librarians from other academic institutions</td>
<td>.146*</td>
<td>.421**</td>
<td>1.00</td>
<td></td>
</tr>
<tr>
<td>q4 fostering alliances and co-operative ventures within the institution</td>
<td>.302*</td>
<td>.494**</td>
<td>.702**</td>
<td>1.00</td>
</tr>
</tbody>
</table>

** Correlation is significant at the 0.01 level (2-tailed)
* Correlation is significant at the 0.05 level (2-tailed)
\( p < 0.01 \) (greater than)
\( p < 0.05 \) (greater than)
\( n = 41 \)

The results of the inter-correlations showed fostering alliances to be moderately related to the collaboration with academic departments (.302), collaboration with the course design department (.494) and a significant strong association with collaboration with instruction librarians from other academic institutions (.702).

The course design department was significantly related to collaboration with instruction librarians from other academic institutions (.421) and the teaching / academic department (.460).

In the case of collaboration with instruction librarians from other academic institutions, the significant large association indicate the need for librarians to share experiences and form support networks in pursuit of the information literacy instruction goals. Another interesting finding in relation to collaborating with the institutions course designers, might be that instruction librarians have no course design skills and want course designers to share expertise and facilitate the writing of the instruction manual either electronic or in print.
Table 6-12: Question 23: The non-technical competencies that an instruction librarian should have:

<table>
<thead>
<tr>
<th>Non-technical Competencies</th>
<th>q1</th>
<th>q2</th>
<th>q3</th>
<th>q4</th>
<th>q5</th>
<th>q6</th>
<th>q7</th>
<th>q8</th>
</tr>
</thead>
<tbody>
<tr>
<td>q1 negotiation skills</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>q2 conflict resolution skills</td>
<td>.492**</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>q3 organising skills</td>
<td>.489**</td>
<td>.363*</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>q4 teaching skills</td>
<td>.044</td>
<td>.036</td>
<td>.230</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>q5 coaching skills</td>
<td>.292</td>
<td>.178</td>
<td>.445**</td>
<td>.276</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>q6 facilitating skills</td>
<td>.305*</td>
<td>.214</td>
<td>.424**</td>
<td>-.055</td>
<td>.339*</td>
<td>1.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>q7 analytical thinking</td>
<td>.276</td>
<td>.288</td>
<td>.249</td>
<td>.231</td>
<td>.084</td>
<td>.191</td>
<td>1.00</td>
<td></td>
</tr>
<tr>
<td>q8 strategic thinking</td>
<td>.125</td>
<td>.162</td>
<td>.232</td>
<td>.284</td>
<td>.165</td>
<td>.268</td>
<td>.793**</td>
<td>1.00</td>
</tr>
</tbody>
</table>

** Correlation is significant at the 0.01 level (2-tailed)
* Correlation is significant at the 0.05 level (2-tailed)

** \( p < 0.01 \) (greater than)
* \( p < 0.05 \) (greater than)

\( n = 39 \)

In the case of the non-technical competencies (see Table 6-12), the inter-correlations were moderate to strong, and significantly higher than those of the personality attributes variables (see Table 6-13). The result of the inter-correlations showed strategic thinking to be largely related to analytical thinking \((.793; p < 0.01)\). Facilitating skills is significantly related to negotiation skills \((.305)\), organising skills \((.424)\) and coaching skills \((.339)\). Coaching skills is significantly related to organising skills \((.445)\). Organising skills is largely related to negotiation skills \((.489)\) and conflict resolution skills \((.363)\). Conflict resolution skills are significantly related to negotiation skills \((.492)\). By contrast, teaching skills was not significantly related to the other variables.
Table 6-13: Question 24: Personality attributes that an instruction librarian must have:

<table>
<thead>
<tr>
<th>Non-technical competencies</th>
<th>q1</th>
<th>q2</th>
<th>q3</th>
<th>q4</th>
<th>q5</th>
<th>q6</th>
<th>q7</th>
<th>q8</th>
<th>q9</th>
<th>q10</th>
<th>q11</th>
<th>q12</th>
<th>q13</th>
</tr>
</thead>
<tbody>
<tr>
<td>q1 interpersonal skills</td>
<td></td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>q2 communication (language) skills</td>
<td></td>
<td></td>
<td>.501**</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>q3 ability to explain</td>
<td></td>
<td>.253</td>
<td>.455**</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>q4 outgoing personality</td>
<td></td>
<td>.435**</td>
<td>.318*</td>
<td>.138</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>q5 approachable</td>
<td></td>
<td>.546**</td>
<td>.385*</td>
<td>.379*</td>
<td>.387*</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>q6 inspire confidence in the learner</td>
<td></td>
<td>.209</td>
<td>.398*</td>
<td>.219</td>
<td>.238</td>
<td>.517**</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>q7 use of presentation apparatus</td>
<td></td>
<td>.226</td>
<td>.571**</td>
<td>.545**</td>
<td>.211</td>
<td>.308*</td>
<td>.217</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>q8 time management</td>
<td></td>
<td>.373*</td>
<td>.556**</td>
<td>.390*</td>
<td>.422**</td>
<td>.512**</td>
<td>.475**</td>
<td>.480**</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>q9 lesson planning</td>
<td></td>
<td>.132</td>
<td>.510**</td>
<td>.428**</td>
<td>.310*</td>
<td>.338*</td>
<td>.360*</td>
<td>.735**</td>
<td>.627**</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>q10 ability to deal with diverse user group</td>
<td></td>
<td>.455**</td>
<td>.505**</td>
<td>.305</td>
<td>.426**</td>
<td>.654**</td>
<td>.640**</td>
<td>.274</td>
<td>.505**</td>
<td>.439**</td>
<td>1.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>q11 capacity to learn constantly and quickly</td>
<td></td>
<td>.322*</td>
<td>.277</td>
<td>.282</td>
<td>.314*</td>
<td>.603**</td>
<td>.487**</td>
<td>.270</td>
<td>.376*</td>
<td>.454**</td>
<td>.645**</td>
<td>1.00</td>
<td></td>
</tr>
<tr>
<td>q12 flexibility</td>
<td></td>
<td>.335*</td>
<td>.209</td>
<td>.236</td>
<td>.172</td>
<td>.498**</td>
<td>.329*</td>
<td>.117</td>
<td>.250</td>
<td>.342*</td>
<td>.407**</td>
<td>.595**</td>
<td>1.00</td>
</tr>
<tr>
<td>q13 capacity for desire to work both independently and in a team</td>
<td></td>
<td>.390*</td>
<td>.303</td>
<td>.216</td>
<td>.190</td>
<td>.459**</td>
<td>.398*</td>
<td>.097</td>
<td>.457**</td>
<td>.317*</td>
<td>.421**</td>
<td>.594**</td>
<td>.564**</td>
</tr>
</tbody>
</table>

** Correlation is significant at the 0.01 level (2-tailed)
* Correlation is significant at the 0.05 level (2-tailed)

p ≤ 0.01 (greater than)
p ≤ 0.05 (greater than)
n = 39
n = 38
n = 37
n = 40
n = 41
n = 42

145
The results of the personality attributes variables showed the inter-correlations of between .308 and 595. This may be due, however, to the variation of sample responses and participation in each variable. For example n = 37 and n = 42 (see Table 6-13).

An interesting finding in capacity for desire to work both independently and in a team was significantly related to interpersonal skills (.390), approachable (.459), inspire confidence in the learner (.398), time management (.457), lesson planning (.317), ability to deal with diverse user group (.421), capacity to learn constantly and quickly (.594) and flexibility (.564).

Flexibility was moderately and largely related to interpersonal skills (.335), approachable (.498), inspire confidence in the learner (.329), lesson planning (.342), ability to deal with diverse user group (.407) and the capacity to learn constantly and quickly (.595).

Capacity to learn constantly and quickly was moderately and significantly largely related to interpersonal skills (.322), outgoing personality, approachable (.603), inspire confidence in the learner (.487), time management (.376), lesson planning (.454) and ability to deal with diverse user group (.645).

The ability to deal with diverse user group is significantly largely related to interpersonal skills (.455), communication (.505), outgoing personality (.426), approachable (.654), inspire confidence in the learner (.640), time management (.505) and lesson planning (.439).

The variable lesson planning had a moderate and significantly large association with communication (.510), ability to explain (.428), outgoing personality (.310), approachable (.338), inspire confidence in the learner (.360), use of presentation apparatus (.735) and time management (.627).

The result of the inter-correlation showed time management to be significantly
largely related to interpersonal skills (.373), communication (.556), ability to explain (.390), outgoing personality (.422), approachable (.512), inspire confidence in the learner (.475) and use of presentation apparatus (.480).

The use of presentation apparatus inter-correlation showed significantly large and moderate relation with communication (.571), ability to explain (.545) and approachable (.308).

The results of the inter-correlation showed to inspire confidence in the learner to be significantly largely related to communication (.398) and approachable (.517).

Approachable was significantly largely related to interpersonal skills (.546), communication (.385), ability to explain (.379) and outgoing personality (.387).

Outgoing personality was largely and moderately related to interpersonal skills (.435) and communication (.318).

Ability to explain was significantly largely related to communication (language skills) (.455).

The results of the inter-correlations showed communication (language skills) to be largely related to interpersonal skills (.501).

6.4 Summary

The variables of particular interest in the present study are those relating to certain qualities towards the role of the instruction librarian. These are tabulated in Table 6-2a to 6-2f, Table 6-3a to 6-3j and Table 6-4j. The first point to note is that the highest percentages in Table 6-2a to 6-2f relates to the opinions of the instruction librarian towards their role in information literacy instruction in an academic information service. The frequency table in Tables 6-3a to 6-3j are concerned with the ranking of the degree of importance of certain qualities towards the role of an instruction librarian. The inter-
correlation coefficients presented in Tables 6-4a to 6-4j reported the relationship between the various components of the skills and knowledge required by instruction librarians.

The hypothesis of the study is accepted as they corroborated the literature analysis and proposal are made regarding the problem statement.

In the following chapter, the summary of the study, conclusions and proposed recommendations of the study will be discussed.
CHAPTER 7

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

The primary purpose of this study was, to develop a competency profile or framework that would assist to improve the skills and knowledge required in information literacy instruction. The conclusion reached is that there is a definite need for a framework of technical and non-technical competencies that instruction librarians can use as a guide to improve on their existing teaching skills.

7.1 Summary of the contents

In Chapter one, the factors which motivated the initiation of this study are identified and the method of investigation is outlined in broad terms. The main assumptions, sub-problems and limitations relevant to the investigation are also mentioned.

A detailed review of the aspects that have an influence on the students' perceptions and attitudes regarding information literacy instruction forms the focus of Chapter two. In this chapter, attention is also concentrated on the unique challenges faced by instruction librarians that are brought about by the involvement of students in information literacy sessions. This chapter addressed the first sub-problem namely, the unique challenges that instruction librarians must be able to understand in order to create a meaningful learning environment.

In Chapter three, two sub-problems were addressed: the extent to which the teaching methodologies and pedagogies can be applied by instruction librarians and the circumstances under which the adult learning principles can be applied by instruction librarians. In this chapter, attention was concentrated on the learning theories that impacts on the way adults learn. Secondly, the characteristics of adult learners are explored to assist the instruction librarian to make an informed decision about the learners, and finally aspects of adult learning that must be incorporated into the information literacy skills sessions are explored.
The aim of Chapter four was to examine the processes involved in course development and design of information literacy programmes. The three formats of collaborative relationships that can be facilitated by instruction librarians were outlined. This chapter addressed the third sub-problem namely, the value of collaborative partnerships.

Whereas Chapters two to four present the theoretical framework for the investigation of competency profile, Chapter five explains the research methodology of the study. The sampling of the population is described as well as the design, pre-testing and administering of the survey instrument. The steps followed to extract the data from the completed online questionnaires are mentioned and finally the procedures for the statistical testing and analysis of the data are presented in broad outline.

The detailed qualitative results are contained in Chapter six, including a detailed discussion of the research findings. Finally, Chapter seven provides the summary, conclusion and recommendations for the study.

7.2 Recommendations and conclusion

In the previous chapter, results obtained in this study were discussed in detail. In the present chapter recommendations based on the research findings and recommendations for further research will be made.

7.2.1 Recommendations based on the research results

At the start of this chapter, it was stressed that the aim of the study was to develop a competency profile or framework that would assist to improve the skills and knowledge required in information literacy instruction. The reality is that many instruction librarians were placed, or found themselves in the instructional field because no one else wanted to teach information literacy skills. Instruction librarians received no formal training at the South African Library and Information Science schools as information literacy instruction does not form part of the core curricular.
They have learned and refined their teaching craft on the job through trial and error. Therefore, for information literacy programmes to be effective, instruction librarians must be able to firstly, support the trends in the higher education landscape. Secondly, meet both the profession’s commitment of preparing library users who are information literate and the growing demand for lifelong learners. The research results indicate that there is a need for well-trained and effective leaders for the programmes to be a success.

In order to meet these criteria, a competency profile is recommended comprising technical and non-technical competencies (Table 7-1) associated with the knowledge and skill that can be used by instruction librarians for developmental purposes. The proposed competency profile can also be used by employers when designing a role profile for the instruction librarian position or job description. The Library and Information Science schools may also find the competency profile useful when redesigning the information literacy curriculum.
<table>
<thead>
<tr>
<th>Technical competencies</th>
<th>Non-technical competencies</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Knowledge and understanding of presentation or training</td>
<td>1. Interpersonal skills</td>
</tr>
<tr>
<td>delivery</td>
<td></td>
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<tr>
<td>2. Knowledge and understanding of adult learning principles</td>
<td>2. Language skills</td>
</tr>
<tr>
<td>3. Basic knowledge and understanding of teaching methodologies</td>
<td>3. Influencing</td>
</tr>
<tr>
<td>4. Basic knowledge and understanding of pedagogy</td>
<td>4. Empathising</td>
</tr>
<tr>
<td>5. Knowledge and understanding of learning styles</td>
<td>5. Service orientation</td>
</tr>
<tr>
<td>6. Knowledge and understanding of scaffolding techniques</td>
<td>6. Results orientation</td>
</tr>
<tr>
<td>7. Knowledge and understanding of the university tuition policy</td>
<td>7. Organising</td>
</tr>
<tr>
<td>8. Knowledge and understanding of the university teaching and learning strategy</td>
<td>8. Sense of urgency</td>
</tr>
<tr>
<td>9. Knowledge and understanding of information literacy standards</td>
<td>9. Initiative</td>
</tr>
<tr>
<td>10. Knowledge and understanding of information literacy</td>
<td>10. Collaborative</td>
</tr>
<tr>
<td>competencies</td>
<td></td>
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<tr>
<td>11. Knowledge and understanding of the online learning</td>
<td>11. Supportiveness</td>
</tr>
<tr>
<td>environment (VLE)</td>
<td></td>
</tr>
<tr>
<td>12. Knowledge and understanding of learning outcomes</td>
<td>12. Logical reasoning</td>
</tr>
<tr>
<td>13. Knowledge and understanding of the principles of content</td>
<td>13. Analytical thinking</td>
</tr>
<tr>
<td>development and delivery</td>
<td></td>
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<tr>
<td>mapping</td>
<td></td>
</tr>
<tr>
<td>15. Knowledge and understanding of course or learning design</td>
<td>15. Judgement</td>
</tr>
<tr>
<td>16. Knowledge and understanding of assessment techniques</td>
<td>16. Flexibility</td>
</tr>
<tr>
<td>17. Knowledge and understanding of instructional devices</td>
<td>17. Time management</td>
</tr>
<tr>
<td>18. Knowledge and understanding of media formats/mode of</td>
<td>18. Ability to explain</td>
</tr>
<tr>
<td>delivery</td>
<td></td>
</tr>
<tr>
<td>19. Knowledge and understanding of resources in electronic</td>
<td>19. Approachable</td>
</tr>
<tr>
<td>format</td>
<td></td>
</tr>
<tr>
<td>20. Knowledge and understanding of lesson planning</td>
<td>20. Critical thought</td>
</tr>
<tr>
<td>22. Intermediate level in use of office packages (e.g. word</td>
<td>22. Negotiation</td>
</tr>
<tr>
<td>processor packages etc)</td>
<td></td>
</tr>
<tr>
<td>23. Basic knowledge and understanding of subject disciplines</td>
<td></td>
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<tr>
<td>24. Basic knowledge and understanding of project management</td>
<td></td>
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<tr>
<td>principles</td>
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<tr>
<td>25. Collaboration management</td>
<td></td>
</tr>
<tr>
<td>26. Relationship management</td>
<td></td>
</tr>
</tbody>
</table>
7.2.2 The proposed competency profile details

7.2.2.1 The proposed behavioural indicators of non-technical competencies

An interpersonal skill includes the display of sound approachable behaviour towards the students.

A language skill in information literacy instruction includes a person who demonstrates sensitivity to another person’s language preference and understanding during instruction. The instruction librarian must act consistently in appropriate ways to accommodate the language diversity.

Empathising in information literacy instruction includes understanding and communicating the students’ thoughts, feelings, values and beliefs as students bring existing knowledge to the learning process.

Service orientation includes the instruction librarian being able to express for providing help to students and serving their information literacy needs over his or her own in service of lifelong learning.

Results orientation involves the ability of the instruction librarian to effectively present and deliver training that meets the information literacy standards and competencies as stipulated by the ACRL (American College of Research Libraries) in 2001 for higher education.

Organising means that the instruction librarian as educator must be able to conceptualise propose training ideas into workable tasks; structures tasks into logical processes and priorities tasks and resources according to the instruction plans.

Sense of urgency maintains that instruction librarian must be able to prioritise training needs effectively, and must be able to meet and take accountability for making decisions about critical decisions. This includes being focussed and disciplined.
Initiative ensures that the instruction librarian is an independent thinker, is proactive instead of being reactive and is being driven by willingness to translate ideas into action. This non-technical competence is important as students expect a librarian to assume different roles when in training.

Collaborative is a key component as instruction librarians are expected to demonstrate a willingness to share knowledge and establish good working relationships. This requires the person to be warm and friendly.

Logical reasoning, critical thought, analytical thinking and judgement involve the ability to interpret and translate the information literacy standards and competencies. Analytical thinking is of importance when using the scaffolding technique during instruction. The librarian must be able to follow up students who might have a problem understanding concepts.

Supportiveness and judgement maintains that during instruction the instruction librarian must be able to distance the beliefs and prejudices they may have towards the students. A sign of respect, trust and a person the students can depend on must be upheld.

Ability to explain and flexibility includes the manner in which the information literacy content is explained to the students. This includes the use of terminology understood by the students and being able to explain in a language understandable to the students. The use of examples relevant to the student’s background knowledge is important.

Conflict resolution and negotiation skills are important in order to ensure that training participation by students is fair for those students who cannot voice their opinions.

Assertiveness in information literacy instruction involves the ability to express beliefs and opinions especially when involved in a collaborative relationship within the institution.
7.2.2.2 Proposed Instruction librarian technical competencies outputs and job content

The survey results indicated a number of gaps in the skills and knowledge of the role instruction librarians need to perform. The proposed job content is based on the technical competencies and must ensure the following:

- The promotion of information literacy to the institution;
- The organising of information literacy programmes;
- The presentation of appropriate information literacy instruction skills;
- The course design and development of information literacy programmes in collaboration with academic departments and learner developers;
- The continuous evaluation of information literacy programmes in collaboration with academic departments and learner developers;
- The design of policies and procedures governing the information literacy programmes;
- The participation in the selection, evaluation and recommendation of information communication technologies to be used in instruction;
- The maintenance of internal and external relationships with stakeholders or partners impacting on information literacy instruction such as the student bodies, Dean of students office, peers at other institutions etc;
- To keep up to date with the e-learning environment and electronic resources;
- To keep up to date with the learning methodology and pedagogy.

7.2.3 Recommendations for future research

Based on this research possible future research fields could include:

7.2.3.1 An investigation of a standard or uniform title for librarians involved in the teaching of information literacy skills.

7.2.3.2 A comparison of the age differences of instruction librarians and what influence does age have in the choice of teaching methodologies and learning
7.2.3.3 A comparison of the skills and knowledge of instruction librarians between the three South African academic institutions consortiums, namely GAELIC (Gauteng and Environs Library Consortium); FRELICO (Freestate Library and Information Consortium); CALICO (Cape Library Consortium); SEALS (South Eastern Alliance of Library Systems) and esAL (Eastern Seaboard Association of Libraries.

7.2.3.4 A longitudinal study to determine what value information literacy skills have on the students’ academic success, institutional throughput and retention rate.
REFERENCES


Accessed 2005-08-28

Accessed 2005-08-28

Accessed 2005-08-28

Accessed 2005-08-28


Accessed 2005-08-28


Accessed 2003-09-18

Accessed 2005-07-15


Contech, J. 2003. *Succeeding in diversity culture, language and learning in


Accessed 2004-08-22

Accessed 2004-08-22


Accessed 2004-08-22


Accessed 2004-08-22


Accessed 2003-09-18


Accessed 2005-08-19

Accessed 2004-08-24


Inglis, A. 2003. Facilitating team-based course design with conceptual mapping. Distance Education. 24(2), October: 247 - 263.


Accessed 2005-07-28


Accessed 2003-06-22


Accessed 2005-06-21

Accessed 2004-08-22


South Africa: Pretoria.


Accessed 2004-05-20


Accessed 2004-05-20


Accessed 2004-05-20

Accessed 2004-05-20


Accessed 2004-08-24

Tenopir, C. 2003. Are online librarians teachers? Library journal, 128(6), April 1:


