THE STATUS AND PRACTICE OF INFORMATION LITERACY FOR TEACHING AND LEARNING IN FOUR TANZANIAN UNIVERSITIES

By

Mugyabuso J. F. Lwehabura

MA in Librarianship, University of Sheffield, UK.
BA. (Ed.) (Hons); University of Dar-Es-Salaam, Tanzania.

Submitted in partial fulfilment of the requirements for the degree of Doctor of Philosophy in Information Studies, Faculty of Humanities, Development and Social Sciences, University of KwaZulu-Natal, Pietermaritzburg, Republic of South Africa.

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DECLARATION

I Mugyabuso Julius Festo Lwehabura, hereby declare that this thesis is a product of my own work unless where indicated to the contrary. I do also declare that this thesis has not been submitted to any other university for another degree.
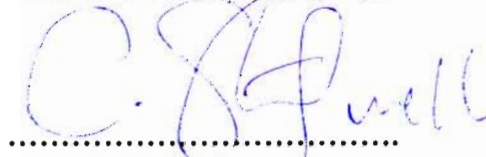
Candidate: **Mugyabuso J. F. Lwehabura**

Signed: ....

Supervisor: **Professor Christine Stilwell**

Signed: ....

ABSTRACT

The purpose of this study was to investigate the status and practice of information literacy in Tanzania's four universities with the primary intention of establishing the foundation for appropriate strategies that could be adopted when introducing or developing information literacy programmes into higher learning institutions in Tanzania that are systematic, effective and capable of fostering adequate information literacy knowledge and skills in students.

Information literacy is a set of skills and knowledge that allows people to find, evaluate, and use the information that they need. These skills also help people filter and synthesise the information they encounter so that they can use that which is useful and meaningful. Information literacy knowledge and skills are the necessary tools that help people successfully find their way in the present and future field of information.

The importance of information literacy is based on the fact that technological developments of the 21st century require that people in all walks of life acquire information literacy knowledge and skills so as to be able to adjust, cope, work and function compatibly with various changes that are taking place in all aspect of daily life and human activities.

In the academic arena information literacy enables students to become competent and independent learners because they acquire the knowledge and skills to know their own information needs and an ability to manage the tools of technology gives access to relevant information, for communication and to problem solving.

Tanzania is a developing country, where the school library system has a very poor infrastructure in terms of resources. This situation denies school leavers the opportunity to acquire appropriate knowledge and the skills required to use various information resources. Systematic information literacy intervention at all educational levels is vital not only for learning independence and academic performance but also for life-long learning skills.

The data for this study were collected from Sokoine University of Agriculture, University of Dar-Es-Salaam, Iringa University College and Saint Augustine University of Tanzania. Self-administered questionnaires were used together with data from 358 teaching staff, 25 librarians and 664 students and interviews were conducted with three Deputy Vice Chancellors (Academic), 12 Faculty Deans, two Library Directors and one Library Head. In addition data were also collected through observation.

The study found that although the four universities' librarians provide some form of information literacy instruction, using a combination of methods that include orientation, lectures, hands-on practice and web-page, this instruction was not effective in fostering the required information literacy knowledge and skills in students. Thus the study established that most students lack adequate skills in the use of both electronic and non-electronic information sources.

The study also established a number of impediments that are linked to the non-effectiveness of information instruction. The researcher considered the lack of an explicit information literacy policy, to provide guidance and directives on how information literacy activities should be conducted, as the main barrier to information literacy activities in the universities studied. Lack of an information literacy policy led to the existing information literacy programmes not being allocated official time within the university timetable, hence they were being attended by students on a voluntary basis. Lack of a formalised programme and inadequate resources are also among the factors that contribute to the ineffectiveness.

However, the study found that the potential opportunity for conducting information literacy in a more systematic and effective manner can be created through involving teaching staff in information literacy activities and integrating information literacy into the mainstream curriculum.

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List of abbreviations and acronyms

AAHE	American Association of Higher Education
AASL	American Association of School Libraries
AAU	Association of African Universities
ACP	African, Caribbean and Pacific Group of States
ACRL	Association of College and Research Libraries
AECT	Association for Educational Communication and Technology
AGOA	African Growth and Opportunities Act
ALA	American Library Association
ALIA	Australian Library and Information Association
ANC	African National Congress
ANZIL	Australian and New Zealand Institute for Information Literacy
BERE	Bureau of Educational Research and Evaluation
BICO	Bureau of Industrial Cooperation
BMC	Bugando Medical Centre
BUCHS	Bugando College of Health Sciences
CALICO	Cape Libraries Cooperation
CALICO	Cape Library Consortium
CARLTF	California Academic and Research Libraries Task Force
CASL	Council of Australian State Libraries
CATS	Credit Accumulation Transfer Scheme
CAUL	Council of Australian University Libraries
CC	Computer Centre
CCM	Chama Cha Mapinduzi
CD-ROM	Compact Disc Read Only Memory
CDS-ISIS	Computerised Documentation Services Integrated Set of Information System
CET	College of Engineering and Technology
CHE	Commission for Higher Education
CHEC	Cape Higher Education Consortium
CICA	Children in Crisis, Africa
CMLEA	California Media and Library Educators Association
COBE	Centre for Outcomes Based Education
CONZUL	Council of New Zealand University Librarians
COTUL	Consortium of Tanzania University Libraries
CPUT	Cape Peninsula University of Technology
CT	Cape Technikon
DATAD	Database of African Theses and Dissertations
DEF	Denmark's Electronic Research Library
DRC	Democratic Republic of Congo
DRPGS	Directorate of Research and Postgraduate Studies
DSI	Developing Studies Institute
EALB	East African Literature Bureau
ELCT	Evangelical Lutheran Church of Tanzania
ENIL	European Network on Information Literacy

ERB	Economic Research Bureau
ERP	Economic Recovery Program
ESAF	Enhanced Structural Adjustment Facility
ESAP	Economic and Social Action Plan
ESDP	Education Sector Development Programme
ESR	Education for Self Reliance
EU	European Union
FAO	Food and Agriculture Organisation of United Nations
FASS	Faculty of Arts and Social Science
FCM	Faculty of Commerce and Management
FE	Faculty of Education
FL	Faculty of Law
FOE	Faculty of Engineering
GDP	Gross Domestic Product
GNP	Gross National Product
HEAC	Higher Education Accreditation Council
HELB	Higher Education Loan Board
HIV-AIDS	Human Immuno Deficient Virus Acquired Immune Deficiency Syndrome
HKMU	Hubert Kairuki Memorial University
IAIL	International Alliance for Information Literacy
ICE	Institute of Continuing Education
IDM	Institute of Development Management
IDS	Institute of Development Studies
IIL	Institute of Information Literacy
IINFOLIT	Information Literacy Project
IKR	Institute of Kiswahili Research
IL	Information Literacy
ILU	Information Literacy Unit
IMCJ	Institute of Mass Communication and Journalism
IMF	International Monetary Fund
IMS	Institute of Marine Science
IMTU	International Medical and Technological University
IRA	Institute of Resource Assessment
ISBN	International Standard Book Number
ISSN	International Standard Serial Number
ISP	Information Search Process
ISST	Information Seeking Skills Test
IT	Information Technology
ITCB	Institutional Transformation Capacity Building
IUCO	Iringa University College
KCMC	Kilimanjaro Christian Medical College
LAN	Local Area Network
LDS	Less Developed Countries
LIANZA	Library and Information Association of New Zealand and Aotearoa
LIS	Library and Information Science
LOEX	Library Orientation Exchange

LRC	Learning Resource Center
MCC	Moshi Cooperative College
MILE	Model Information Literacy Education
MOEVC	Ministry of Education and Vocation Training
MOSAIC	Making Sense of Information in the Connected Age
MPCCS	Multi Purpose Community Centres
MSTHE	Ministry of Science Technology and Higher Education
MU	Mzumbe University
MUCO	Makumira University College
MUCCoBS	Moshi University College of Cooperative and Business Studies
MUCE	Mwenge University College of Education
MUM	Muslim University of Morogoro
MUSCHS	Muhimbili University College of Health Sciences
NACTE	National Council for Technical Education
NCATE	National Council for Accreditation of Teacher Education
NCL	National Central Library
NEPAD	New Partnership for Africa's Development
NESP	National Economic Survival Programme
NFIL	National Forum for Information Literacy
NGO	Non Government Organisation
NRC	National Research Council
NSGRP	National Strategy for Growth and Reduction of Poverty
NSTC	Nyegezi Social Training Centre
NWGTLS	National Working Group for TAFE Library Services
OU	Open University
OUT	Open University of Tanzania
PANTIL	Programme for Agricultural and Natural Resources Transformation for Improved Livelyhoods
PEDP	Primary Education Development Plan
PERI	Programme for the Enhancement of Research Information
PFP	Policy Framework Paper
PT	Peninsula Technikon
RUCO	Ruaha University College
SAFARI	Skills in Accessing, Finding and Reviewing Information
SAP	Structural Adjustment Program
SAQA	South African Qualifications Authority
SAUT	St. Augustine University of Tanzania
SBU	South Bank University
SCONUL	Society of College, National and University Libraries
SCSRD	SUA Centre for Sustainable Rural Development
SEDP	Secondary Education Development Programme
SLS	School Library Services
SNAL	Sokoine National Agricultural Library
SPMC	SUA Pest Management Centre
SPSS	Statistical Product and Service Solution
SUA	Sokoine University of Agriculture

SUNY	State University of New York
SUZA	State University of Zanzibar
TANDOC	Tanzania National Documentation Centre
TANU	Tanganyika African National Union
TAS	Tanzanian Shilling
TCDC	Training Centre for Development Cooperation in Eastern and Southern Africa
TCU	Tanzania Commission for Universities
TEC	Tanzania Episcopal Conference
TEEAL	The Essential Electronic Agricultural Library
TLC	Thoughtful Learning Circle
TLS	Tanzania Library Services
TLSB	Tanganyika Library Services Bureau
TU	Tumaini University
UCB	University Consultancy Bureau
UCC	University Computer Centre
UCLAS	University College of Lands and Architectural Studies
UCT	University of Cape Town
UDI	Unilateral Declaration of Independence
UDSM	University of Dar-Es-Salaam
UKZN	University of KwaZulu-Natal
UNESCO	United Nations Education and Scientific Organisation
UNICEF	United Nations Children and Education Fund
UNISA	University of South Africa
URT	United Republic of Tanzania
US	United States
USD	United States Dollar
USIS	United States Information Services
UWC	University of Western Cape
WB	World Bank
WGIC	Working Group on Information Competence
WTO	World Trade Organisation
WUCO	Waldorf University College

Chapter One

Introduction to the study

1.1   Introduction

This chapter introduces the subject of the study, beginning with a general introduction and a discussion of the background information on the problem. The background information is followed by the theoretical framework for information literacy (IL) where theories pertaining to IL in the education context and information literacy teaching models are discussed. The problem statement focuses on the inherent issues associated with the complex question of information skills among information users, particularly the students, in Higher Education. This is followed by the purpose and objectives of the study. Research questions guiding the study are outlined followed by a definition of the key terms used in the study. The scope and limitations of the study are also presented.

1.2   Background and context of the study

Society in the 21st century, referred as an "information society", is characterised by enormous changes that have been brought about by technological development (Kuhlthau 2001). In various ways these changes have affected and continue to affect every segment of society including economic, social and political structures. As these changes continue, they create the basis for a society that is fundamentally new and complex (Adler 1999:3). In the information sector, for example, the technological developments of the 21st century have brought about a proliferation of information both in terms of quality and quantity. This development has also brought about changes in the way information can be processed, stored and retrieved. In their observations about the changes brought by information development, Martin and Williamson (2003:144) state that:

> *Information technology has expanded the quality of information and the formats in which it is held have developed and changed, however, the information revolution has brought with it the curse of information overload... this has also made information superficially much easier to access but it leaves the user with the responsibility for deciding what is quality information and what is not.*

In other words, besides creating a number of opportunities regarding information handling, this development has created some challenges that need to be resolved. One

among many other challenges is the complexity of finding, selecting, evaluating and using information. In order to cope with these challenges, information users, including students, require information skills to allow them to utilise various information sources competently, to evaluate information effectively and to navigate various information networks so as to be able manage their daily information needs satisfactorily. In academic environments such as schools, colleges, universities and other higher education institutions, both students and staff need information literacy skills to enable them to manage their studies, research and other more general endeavours. Rader (2003:25) observes that education institutions need to prepare and teach their students to integrate learning opportunities into everything they do in their educational careers so that they become successful in the constantly changing work environment and in society.

However, as observed by Rader (2003:25), despite the fact that some people have began considering books and other printed information as less valuable and less important than electronic information, libraries remain one of the important institutions for the delivery of information services. Academic and research libraries support the teaching and research needs of the institutions they serve thus making them important educational institutions. The use of technology has not reduced the importance of libraries instead it has created an additional responsibility for librarians to make sure that the information resources, that are the product of information technology available within and outside libraries, are effectively utilised by the clientele they serve. In order to ensure this is achieved Rader (2003:25) is of the opinion that librarians should provide practical and effective training for skills in the use of various information resources and integrate such instruction through the educational curriculum.

Although for many years librarians, especially those in developed countries, have been involved in doing research and developing various programmes geared towards introducing and teaching skills for effective information use and library utilisation in general to various information user groups, the emergence and spread of IL in many institutions is a response to the challenges created by the information explosion and proliferation. According to Bruce and Candy (2000:3) in the last decade IL has become a

global issue and many IL initiatives have been documented throughout the world, with particularly strong efforts and examples in North America, Australia, South Africa and Northern Europe. Given the importance attached to IL in many countries with the United States of America (US) taking the lead, initiatives have been implemented in order to develop and promote it. These initiatives include developing IL standards for teaching and assessment as well as actual programmes taught at various education levels. The details about some of these initiatives are discussed in chapter three.

An ever-changing technological environment and the complex nature of information handling in the information age present challenges that necessitate action to be taken in order to equip information users with the knowledge and skills that would enable them to overcome this challenge. According to Tise (2004:6) IL is a prerequisite for participative citizenship, social inclusion, the creation of new knowledge, personal empowerment and learning for life. For developing countries IL is not an issue that can be opted out of; people in various places, including work places, as well as students at various levels need to become information literate. Emphasising the issue of educating people for IL, Rader (2003:25) points out that students need to obtain high levels of literacy during every phase of their education so that they can achieve excellent skills in reading, writing, mathematics, critical thinking, excellent communication and information skills to be able to be successful and function productively in the 21st century.

While developed countries continue to take the lead in many areas where information literacy is needed and have made it an important agenda item in various meetings and fora, in developing countries information literacy is still lagging behind (Pejova 2002). This situation poses a challenge for all information professionals and other educators in developing countries, African countries in particular. Tise (2004:7) thus urges librarians and information services professionals to realise the crucial role they have to play towards promoting, developing and inculcating IL knowledge and skills among people. Tanzania is not different from other developing countries in terms of its information literacy deficiencies. People in various sectors including work places, schools and other academic institutions lack the information knowledge and skills needed for their day-to-

day needs. This situation calls for appropriate action to be identified and acted upon in order to improve this situation. It is this problem that the study seeks to address.

Librarians in Tanzania like their counterparts in other countries have the responsibility of educating information users, not only for enhancing the effective use of the information resources available in libraries and information centres, but also to educate them about all aspects of IL in order to equip them with knowledge and skills appropriate to the information age. To fulfil this, good planning that can lead to the effective implementation of viable IL programmes is required. In this respect, this study is considered highly relevant and potentially significant for higher learning institutions in Tanzania.

1.3   Information literacy (IL): theoretical framework

For many years librarians have been engaged in teaching people how to use the library and its resources (Kaufman 1992:38). This teaching role according to Faber (1990) and Tuckett and Stoffle (1984) dates back to the 19th century. The teaching involved various rubrics such as library orientation, bibliographic instruction, information research skills, user education et cetera. Since Paul Zurkowski introduced the concept of information literacy in 1974, consciousness about its significance has spread around the world primarily through information professionals, librarians and other educators (Bruce and Candy 2000:3). According to CMLEA (1997) the library profession's response to the proliferation of information was to reconfigure the library skills instruction of the 1960s into a research framework and calling it information literacy. Because of its growth, strength and recognition, educational institutions, professional organisations and individual scholars have examined and contextualised information literacy in different respects (Eisenberg, Lowe and Spitzer 2004:5). Because of various interpretations of and contextual perspectives on information literacy, different definitions, as discussed under section 3.5, have been derived, and different models and approaches on how IL should be delivered, particularly in an academic setting, have also been developed. While the prime focus of the majority of information literacy models has been in formal education settings, both in schools and in higher education institutions (Bruce and Candy 2000:3;

Mutch 2000:153), information literacy models have started to emerge in workplaces, community and continuing education. In all contexts the fundamental emphasis of information literacy remains, that of helping people effectively access and use information in its different forms and aspects.

As pointed out earlier, the concept of IL has been used primarily in higher education and primarily championed by scholars in western countries mainly from the US, the UK and Australia. It is in these countries where IL theories and models have been developed. Some of the famous scholars in IL include P. Breivik, C. Kuhlthau, M. Eisenberg, B. C. Doyle, E. Grassian, L. Mc Crank, H. Rader, J. Shapiro, L. Snavely and A. Irving in the US. In Australia some of the prominent IL scholars include, C. Bruce, P. Candy, P. Moore, R. Todd, A. Bundy and R. Catts. In the UK some of IL experts include M. Hepworth, G. Johnson, B, Johnston and S. Webber. In Africa some prominent scholars working and advocating for IL have emerged. These include M. Nassimbeni, K. De Jager, Y. Sayed, M. Machet and G. Hart.

Information literacy, according to Todd (2000:164), can be characterised by two unifying features:

    (i)   IL as a key literacy integrated into teaching and learning process.

    (ii)   Information as a sequenced process model and operationalised as a set of competences and intellectual skills that are related to handling and using information resources.

These two features are articulated in the education context. Beyond formal schooling IL is linked to values related to skills for personal empowerment and quality of life, an aspect that is also linked to the notion of independent and lifelong learning (Todd 2000:164).

However, since it emerged more widely as a concept in the 1970s some authors like Eisenberg and Brown (1992); Mutch (2000) and Todd (2000) have considered IL as lacking a firm theoretical framework. Todd (2000) for example, criticises IL discourse for being primarily rhetoric about education practices and applications, which calls for

improving learning and literacy outcomes. He thus argues that approaches to and implementation of IL initiatives should move from focussing on developing the cognitive scaffolding to information seeking behaviour, cognitive information processing and information utilization to a more holistic theoretical framework. This effort in his view would do much to counter criticism levelled at IL that apart from its educational applications, sits in a theoretical limbo (Todd 2000:164). Todd (2000) identifies four blocks for IL building a theoretical framework.

(i)   A review of people as active consumers of information rather than as passive, robotic vessels into which information is poured.

(ii)   Cognitive activity as a central aspect for IL.

(iii)   A constructivist concept of information whereby information is seen as an enabling tool for people to construct their sense of an information world during their lives.

(iv)   A focus on information for purposeful utilization to meet some effect.

Since this PhD. study is primarily on information literacy in the education sector the theoretical framework that underpins this study is one that regards IL as a cognitive activity that can enable students to become more constructive in their searching for, and proper utilization of, the information they encounter. This view is based on the consideration that good out-comes for IL programmes can be better achieved when they are firmly integrated into the teaching and learning processes, in other words, IL should be an integral part of the education curricula.

1.3.1   IL theory emerging in the education sector

In spite of such criticisms, since the 1990s some scholars dealing with IL have come with studies and theories that underpin IL. In this regard some of the prominent theoreticians include Carol Kuhlthau and Christine Bruce. According to Kuhlthau (1987:23) the emerging theoretical base for library instruction is the one that combines learning theory, information seeking behaviour and a broader view of library skills. The views and theories constructed by these two scholars contribute to the theoretical framework of this study.

1.3.1.1 Kuhlthau's Information seeking process theory

As mentioned above Kuhlthau is among the scholars who have contributed to the theoretical foundations of IL. Her empirical studies leading to theoretical conclusions comprise the most extensive body of work related to IL. Her research into the information-seeking behaviour of students exhibit her philosophy about IL, that IL is not a discrete set of skills but rather a way of learning (Eisenberg, Lowe and Spitzer 2004:44) Kuhlthau's theory is a combination of cognitive science and constructivist learning theory drawn from views of other scholars like Dewey (1933); Kelly (1963) and Bruner (1973; 1986). According to Kuhlthau (1996) information seeking is a process of construction in which a user is actively engaged in learning from information encountered during various stages of the information search process. Information seeking is also a process affecting and being affected by the feelings of the information seeker. She notes that information seeking is a process of learning that began with vague thoughts and low confidence, and closed with significant clarification of thoughts and increased confidence (Kuhlthau 1993:57). Much of Kuhlthau's theory on information literacy education is essentially based on constructivist learning theories.

The central vision of constructivism in learning as noted by Perkins (1992:49) is the notion of an organism being "active" and involved in engaging, grappling and seeking to make sense of things. In relation to IL the pertinent issue is the process of interaction with the subject material and experience. In the process of acquiring IL knowledge and skills students need to interact with information sources and out of them draw reflections on the experience gained.

1.3.1.2 Bruce's rational approach for IL

Bruce is another IL theoretician who has contributed greatly towards the theoretical framework of IL. Applying learning theories and phenomenographic research Bruce (1997a) suggests a "relational' model for IL to accompany the behavioural models (Eisenberg, Lowe and Spitzer 2004:47). According to Bruce (1997a:1) the dominant model in the IL literature and in practice has been behaviourist which puts emphasis on measurable skills, abilities and has its focus on designing learning packages so that

specific skills are taught and need to be demonstrated. However, Bruce (1997c:7) observes that this model is weak because teaching specific skills and knowledge is fundamentally against the idea of IL which suggests that knowledge and skills are quickly outdated and that IL involves being able to learn and relearn in the face of constant change. Bruce (1997c) also merits mention in terms of a constructivist approach, however on the other hand she is of the opinion that constructivist ways of defining IL tend to put more emphasis on referring to characteristics exhibited by individuals, a situation which she considers as a weakness.

Bruce (1997b) contends that as a phenomenon, information literacy combines the range of experience that students have to be enabled to experience and make reflections upon. The various experiences they encounter assist them to understand which form of information literacy is relevant in different situations. Bruce therefore favours what she terms the rational approach. She has identified three approaches to information literacy, of which the rational approach is one:

(i)   *The behaviourist approach*

This approach puts its emphasis for IL on measurable skills. For this approach to be seen as information literate, an individual must show or exhibit certain characteristics and demonstrate certain abilities. The behaviourist approach focuses on the skills similar to those listed in the ACRL (2000) Standards. (See Appendix 1).

(ii)   *The constructivist approach*

This approach puts its emphasis on the learner being able to construct his/her own picture and the meaning of the domain for his/her learning. The nub of this approach is that learning can best be achieved through problem-based activities. Learners are therefore encouraged to grow by focusing on their personal goals, motivation and prior understanding in order to develop and construct new perspectives (Wolfe 2002:157).

(iii)   *The rational approach*

This approach begins by describing a phenomenon in terms of the way in which it is experienced.

Bruce's emphasis is therefore to understand the way information users conceive the concept of IL.

According to Bruce (1997a:168) learning is a change from one understanding to another, qualitatively more complete one. From this contention, Bruce (1997a) developed her "Seven Faces of Information Literacy" model in which she gives a detailed description of the seven stages through which an individual experiences and understands IL. The model is discussed under section 1.3.3.

1.3.2 Information literacy and learning theories

According to Tuckett and Stoffle (1984) as cited by Kuhlthau (1987:23) in academic libraries, IL has evolved from user education, library instruction and bibliographic instruction as she observes:

> *Bibliographic instruction in academic libraries has evolved through three models, a library tool approach, a conceptual frameworks approach and a theory based approach*

In the past, the approach to IL has frequently been narrowly skills-based and source based in a way that focused on equipping and aiding students to acquire skills in using a particular library and its specific sources or tools (Mutch 2000:154; Eisenberg and Brown 1992:104; Kuhlthau 1987). This approach has been criticised by a number of authors including Bruce (1997c) and Kuhlthau (1987). For example, Kuhlthau (1987:24) points out that this approach had disadvantages in the lack of transfer to other situations of information seeking.

Approaches to IL teaching are now influenced by both learning theories developed by education psychologists and research in information seeking behaviour. According to Kuhlthau (1987: 25 and 2001) new methods for teaching IL are based on cognitive and affective attributes and applied to teaching methodologies. These theories are mainly concerned with problem solving and seeking meaning. For example, the developmental

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psychology theories developed by Jean Piaget[1], contend that children's cognitive abilities develop in a sequence of stages from sensorimotor, preoperational, concrete operations to formal operations. These stages as conceived by Piaget can be applied in IL programmes. Other theories from other psychologists like Kelly, Bruner and Neisser that are also based on sequential leaning can be applied in IL programmes as well (Kuhlthau 1987: 25). Based on those theories Kuhlthau (2001) advocates a constructivist approach to learning as being suitable for teaching and learning IL as opposed to the transmission approach or skills approach. Constructivism is a philosophy of learning based on the premise that learning takes place through reflecting on one's own experience and constructing understanding of the world we live in. Thus learning according to constructivists is a process of adjusting our mental models to accommodate new experiences. Constructivist learning theories reject the conception of regarding learners as empty vessels that depend on teachers or experts to be loaded or filled with knowledge. As an alternative the theory emphasizes that learners should be afforded direct encounters with raw materials, data, objects and event (McCartin and Feid 2001). The purpose of learning is for an individual to construct his or her own meaning, rather than memorize and reiterate someone else's meaning. Under constructivist teaching, strategies are tailored to encourage students to analyse, interpret and predict information, and to apply hands-on approaches to learning and problem solving.

A constructivist approach is very pertinent in developing IL skills especially regarding the aspect of independent and lifelong learning. Constructivism involves linking and classifying information in new ways as well as helping to build personal meaning. Bringing constructivist learning theory and information literacy together Kuhlthau (2001) emphasises that constructivist theory focuses on the process of thinking that builds understanding by engaging students in encounters with information ideas. Information literacy is also influenced by research in information seeking behaviour. In recent years according to Kuhlthau (1987:25), research in information retrieval has

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[1] Swiss biologist and psychologist Jean Piaget (1896-1980) constructed a highly influential model of child development and learning whose theory is based on the idea that the mental and cognitive development of a child develops and increases in sophistication in stages moving from a few innate reflexes to highly mental activities.

shifted from stressing studies on text or source representations and search techniques to the studies on users. Kuhlthau (1989:19) observes that the information research process is a holistic learning process encompassing the affective experience of students as well as their intellect. She thus emphasises that IL should be imparted by means of genuine assignments rather than source-based instruction.

1.3.3   Information literacy teaching models

Based on various learning theories a number of IL teaching and learning models have been developed and are used by educators and IL practitioners across the world. Some of those models include the following:

(i)   The thoughtful learning cycle developed by Stripling and Pitts in 1988

(ii)   Big6 information skills, developed by Eisenberg and Berkowitz in 1990

(iii)   Attributes of the information literacy person developed by Doyle in 1992

(iv)   Information Search Process (ISP) model, developed by Kuhlthau 1993

(v)   Pathway to knowledge developed by Pappas and Tepe in 1997

(vi)   Research cycle raceway developed by J. Mckenzie in 1995

(vii)   Seven Faces of Information Literacy developed by Bruce in 1997

(viii) The New South Wales (NSW) (Australia) Information Process model.

These models provide a series of processes or steps that information users tend to go through, when solving an information problem. The models are described here but not in chronological order.

1.3.3.1 Information Search Process (ISP) model

Using cognitive and constructivist learning theories Kuhlthau (1993) developed the Information Search Process (ISP) model. This model, with seven phases, portrays the link between cognitive processes and affective or emotional factors experienced by an individual when searching for information. The ISP model phases are:

(i)   *Task initiation* - contemplating the task, problem or project and identifying the possible issue or question to pursue; *uncertainty*

(ii)   *Topic selection* - selecting a topic, clarifying the issue or engaging in questions to explore; *optimism*

(iii)   *Exploration* - encountering inconsistency and incompatibility in information and ideas; *confusion*

(iv)   *Formulation* - forming a focused perspective from the information encountered; *clarity*

(v)   *Collection* - gathering and documenting information on the focused perspective; *confidence*

(vi)   *Presentation* - connecting and extending the focused perspective for presenting to the community of learners; *satisfaction or disappointment*

(vii)   *Assessment* - reflecting on process and content learning; *sense of personal ISP*

Based on her ISP model, Kuhlthau (2005) advances three main perspectives in relation to information seeking:

(i)   Information seeking is a process achieved over time rather than a single event.

(ii)   Information seeking is a holistic process, seeking meaning rather than a simple question answering activity.

(iii)   Information seeking initially increases uncertainty rather than decreasing it.

Therefore, in order to teach IL effectively Kuhlthau (2005) recommends that librarians should avoid concentrating on the physical attributes of information seeking such as locating, and checking out materials, but instead be aware of the process and approach, attending to the cognitive and affective attributes of using information for solving problems for learning and for seeking meaning.

Milam (2004:21) is of the view that Kuhlthau's model is effective because it focuses on students' feelings throughout the research process while at the same time applying constructivist principles of building on prior learning.

1.3.3.2 Seven Faces of Information Literacy

Bruce (1997a), an Australian scholar, also uses learning theory to develop her IL model famously known as 'Seven Faces of Information Literacy' with seven ways or faces through which an individual sees and experiences information use.

In her model these seven stages are:

(i) *Information technology conception*

Under this conception, IL focuses on the use of information technology. Experience acquired is based on an individual's ability to access, retrieve and communicate information using information technology.

(ii) *Information source conception*

This conception pegs IL under the ability of finding information from located resources. Information literacy is thus seen in terms of knowledge and ability to access and use information resources.

(iii) *Information process conception*

Under this conception, IL focuses on the process. These processes are the strategies used in tackling and executing an information task in which information seekers lack or have no information about it.

(iv) *Information control conception*

The focus of this conception is the ability of an individual to control information through various filing systems, brain or human memory as well as computers so as to be able to store and retrieve information.

(v) *Knowledge construction conception*

Under this conception knowledge is seen as building up a personal knowledge base in a new area of interest. An individual uses information critically by analysing and evaluating it for constructing a knowledge base. Information becomes an object of reflection that appears to individual users.

(vi) *Knowledge extension conception*

Here, information literacy is seen as working with knowledge and personal perspective adopted in such a way that novel insights are gained. Users gain

intuition and creative insight in using information. The main emphasis is the ability to use information as a tool for solving a problem.

(vii)   *The wisdom conception*

At this stage information literacy is seen as using information wisely for the benefit of others. To use information wisely involves the adoption of personal values that include judgement, critical decisions and doing research. It also involves consciousness of the need for the ethical use of information.

Bruce, therefore see the acquisition of information literacy skills as a mastery of process and learning tools.

1.3.3.3 The New South Wales (Australia) Information Process model

This model has the following six steps:

- Defining
- Locating
- Selecting
- Organising
- Presenting
- Assessing

Eisenberg, Lowe and Spitzer (2004:45) relate this model to the Big6 Skills model. This model places information skills into two categories:

(i)   *Information locating skills* (finding information in a variety of forms and sources and finding information within sources).

(ii)   *Understanding and using information skills* (evaluating, synthesising information found and presenting information).

According to Eisenberg, Lowe and Spitzer (2004:45) the New South Wales Department of Education, the author of the model, presents the information process as a "philosophical basis and working tool" for planning and teaching information problem solving skills.

1.3.3.4 Big6 information skills

The Big6 skills is one of the most widely- known and widely-used models for teaching information and technology skills in the world (Eisenberg, Lowe and Spitzer 2004:44). The Big6 is an information problem-solving model that integrates information search and use skills in a systematic process. The six basic steps of this model are:

- *Task definition*: (defining the problem and identifying its information requirements)
- *Information seeking strategy*: (determining possible sources and evaluating their priority so as to identify the best sources)
- *Location and access*: (locating the sources intellectually and physically and finding relevant information within them)
- *Use of information*: (engaging in the use of information by reading, hearing, viewing or touching and extracting details of the relevant information)
- *Synthesis*:(organising information from multiple sources and presenting information)
- *Evaluation*:(judging the product in terms of its effectiveness and the process in terms of its efficiency) (Eisenberg and Berkowitz 1988).

The Big6 according to Eisenberg and Berkowitz (1988) gives students a systematic framework for solving information problems and it can be used with students at all levels.

Although when people seek or apply information to solve a problem or make a decision they do not undergo these stages in a linear order but they will in one way or another go through these six stages. According to Milam (2004) this model is based on the six levels of Bloom's taxonomy and it supports critical thinking. Bloom identified six levels within the cognitive domain ranging from the simple recall or recognition of facts as the lowest level, through increasingly more complex and abstract mental levels, to the highest order which is classified as evaluation. Each level has specific skills that can be demonstrated by the learner. These levels and demonstrable skills are:

- *Knowledge:* (recall and remembering data or previously learned or encountered material or information).

- *Comprehension:* (understanding or grasping the meaning of material or information and translating, interpreting, explaining and summarising material or information of instructions or problems).

- *Application:* (ability to use learned concepts or material in new situations and apply rules, laws, methods and theories into novel situations).

- *Analysis:* (separates or breaks down material, concepts and information into component parts and organises them so as to bring clarity that distinguishes facts from inference).

- *Synthesis:* (ability to build structure or patterns from diverse elements and combine them to form a new whole thereby creating a new meaning and structure).

- *Evaluation:* (ability to make judgements about the value of ideas or material for purposes that are based on criteria and supportive reason) (University of Victoria 2005)

Milam (2004) also adds that every two steps in the Big6 model, relate to one of Piaget's three stages of cognitive development namely pre-operational, concrete operational and formal operational.

1.3.3.5 Doyle's attributes of the information literate person

Doyle's model was the result of a Delphi study that involved a diverse panel of experts drawn from members of the National Forum on Information Literacy. The panellists came up with a definition for information literacy and a group of attributes the information literate person would possess. According to these attributes, an information literate individual is one who:

- Recognises that accurate and complete information is the basis for intelligent decision-making.

- Recognises the need for information

- Formulates questions based on information needs

- Identifies potential sources of information

- Develops successful search strategies

- Accesses sources of information including computer based and other technologies
- Evaluates information
- Organises information
- Integrates new information into an existing body of knowledge
- Uses information in critical thinking and problem solving. (Doyle 1992:8).

1.3.3.6 The Thoughtful Learning Circle (TLC) model

This model involves six levels of student's research.

- Fact finding
- Asking/searching
- Examining/organising
- Evaluating/organising
- Integrating/concluding
- Conceptualising

As with other models discussed Milam (2004) contends that these levels are also similar to Bloom's taxonomy. The emphasis of this model is that IL instruction should be based on how students learn best and that more new learning occurs when connected to previous learning which is a precept of constructivist learning theory.

1.3.3.7 Pathways to Knowledge

This model with six steps focuses both on the steps in the research process and on constructing knowledge from the findings. The steps in this model are:

- *Appreciation*: (students explore a topic for information seeking through sensing, viewing, listening, reading and enjoyment).
- *Pre-search*: (students explore what they already know and what they want to know about the topic and establish a focus; develop an overview, and explore relationships).
- *Search*: (students seek appropriate sources, plan and implement a search strategy, identify information providers, select information resources and tools and seek relevant information).

- *Interpretation*: (students assess usefulness and reflect on research results to develop personal meaning and interpret information).
- *Communication*: (students organise and apply their research in an appropriate format).
- *Evaluation*: (this stage involves thinking about product and process through evaluation. Ideally this occurs at each stage as needed).

This model according to Milam (2004) is based on constructivist methods and an inquiry based approach that acknowledges that students work and learn best when building on previous knowledge. This model also encourages students to become adept at constructing knowledge using a number of sources and creating a variety of end products.

1.3.3.8 Research Cycle Raceway

This is an inquiry-based model with seven steps. Students use this model by working through the cycle repeatedly in order to refine a research question, to make a search process and to obtain the final results. These seven steps are:

- Questioning
- Planning
- Gathering
- Sorting and sifting
- Synthesising
- Evaluating
- Reporting

According to Loertscher and Woolls (2002:129) this model is designed to help students deal with information from the Internet. The emphasis of this model is based on the fact that before a research project can produce optimum results students need to refine, revise and revisit sources repeatedly. The model helps students to become independent users of information because it requires intensive research efforts and critical evaluation before the product of the research is finalised.

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Although these models use different wording for their levels or stages, all of the models seem to agree with each other in terms of their general outlook regarding the activities required or undergone in the process of information gathering. Eisenberg, Lowe and Spitzer (2004:43) share this view by observing that these models have many similarities and points of agreement and adds further that the driving force behind almost all of the models is the 'process' aspect in that information skills are not isolated incidents but rather are connected activities that encompass a way of thinking about and using information. The models also legitimise the view that information literacy is a process rather than a discrete set of skills. The models also share in common the belief that IL knowledge and skills should be taught and the learning imparted within the context of an over all process (Eisernberg and Brown 1992:108).

As will be discussed under section 3.6.3 contemporary teaching and learning practices are now characterised by student-centred, problem-based or inquiry-based approaches. All these approaches have their philosophies drawn from various learning and teaching theories. What needs to be emphasised is that in order to achieve the maximum IL outcomes, the whole process of IL teaching should be considered as part of contemporary learning theories because, as pointed out by Moore and Page (2002), IL exists in pedagogical terms at the confluence of resource-based learning practice, constructivist and meta-cognitive theories and derives from the practice of developing thinking skills through modelling and scaffolding. It is therefore important for educators engaged in IL (librarians inclusive) to be knowledgeable about various learning theories. This stance is clearly affirmed by Grassian and Kaplowitz (2001:34) that:

> *The most effective information literacy instructors are those who are familiar with a variety of learning theories and the teaching techniques that are based on those theories. Effective instructors remain flexible and are willing to mix and match various techniques as needed.*

1.4   Statement of the problem

This study seeks to critically investigate the status and practices of IL as a means for imparting and acquiring skills for effective teaching and learning in Tanzanian

universities. This investigation was undertaken in order to come up with best strategies that can be adopted by higher learning institutions in Tanzania so as to improve the existing practices or to introduce and develop effective IL programmes that can assist students to gain the knowledge and skills that are necessary for the contemporary information environment and for lifelong learning.

In Tanzania, as in other developing countries, it is a common observation among librarians and other information professionals that most information users, especially students, have information skills deficiencies. Students attend universities and other higher learning institutions knowing very little or nothing about the basic library use and information search skills, computer related skills and other information skills in general. To a large extent this problem emanates from the poor base of library systems in most developing countries both in rural and urban centres. Students come and are educated from education environments with poor learning facilities that do not include the library as a learning resource. As a result of that situation, most of those students lack the information knowledge and skills necessary to effectively comprehend what they require in order to meet the information needs of their day to day academic pursuits. In Africa, several articles and reports on school libraries in different countries confirm this problem. This body of work includes those of Dike and Amucheazi (2003), Obajemu (2002), Amaral (2000), Odini (2000;1993), Radebe (2000), Rosenberg (2000), Sidibe (2000), De Jager and Nassimbeni (1998), Tawete (1991;1995) Materu-Behisa (1994) and Alemna (1993).

In Tanzania according to Chowdhury and Tadesse (1995:165), a study by Materu-Behisa (1994) revealed that most of the schools have disorganised collections of materials but not a library in the true sense; school libraries have not been able to engage even paraprofessional full-time staff. The study by Materu-Behisa (1994) showed that in 17 secondary schools and teacher training college libraries only four library staff possessed some formal training; only one teacher training college had a librarian, and two were run by a registry clerk.

Other studies and reports concerning school libraries in Africa such as those by the Department of Education and Human Sciences Research Council (2001) in South Africa, Dike and Amucheazi (2003) and Obajemu (2002) in Nigeria, Amaral (2000) in Mozambique, Sidibe (2000) in Mali also confirm the poor resources as well as non-existence of school library in Africa.

In general the school library and information system in many African countries is poor. Rosenberg summarises this situation as follows:

> *In Africa (and developing countries in general) whilst the need for education has been recognised, the need for libraries has not. Government and Ministries of Education have not accepted that libraries and book provision should be a component of educational investment. The establishment and maintenance of school libraries has been relegated to the last place on the scale of priorities. The majority of schools possess no library. Where some semblance of a small library does exist it is often no more than a few shelves of outdated and worn out material inadequately staffed and thus marginal to teaching-learning process* (Rosenberg 1998:2).

This scenario of poor school library systems in Africa has led to lack of exposure to information technologies and information sources for most of the students who are supposed to be provided for by libraries (De Jager and Nassimbeni 1998:131). The poor background experienced by school students has led them to carry this problem with them when enrolling at universities and other learning institutions (Zaki 1991). In the researcher's experience it is commonly found that most students, when entering university cannot use a catalogue to locate a document in the library. It is also common that senior students in their third or fourth year of studies cannot differentiate a book from a journal or an article from a chapter. The researcher's experience in dealing with students has shown that on their first visit to the library a great number of students cannot search for information using Compact Disc Read Only Memory (CD-ROM) without asking for assistance from librarians. Many cannot use Internet facilities. Since these same students enrol for postgraduate studies, they tend to continue to experience these problems throughout their studies.

The lack of information knowledge and skills problem is exacerbated by the fact that many African universities lack meaningful programmes geared to bring about

improvement in the level of information skills (Mchombu 1991:30-31). Lack of user education is also reported by Mgobozi and Ocholla (2002:92) in their study on the use of electronic journals for the dissemination of scholarly information by the University of Natal (now the University of KwaZulu-Natal) and University of Zululand. In this study Mgobozi and Ocholla (2002:92) observed, among other things, a lack of user education as a reason for poor use of electronic journals by students. This situation has a detrimental effect on the development of independent learning skills essential for successful educational development.

Although some forms of instruction, intended to enable the effective use of information may exist in certain higher learning institutions in Tanzania, according to Katundu (2002:43) to a large extent, most of this instruction lacks the capacity to produce an information user with the skills and competencies to evaluate, utilise, create, organise and share information.

Since no comprehensive study has been undertaken to assess and make evident the nature and forms of library instructions/information literacy programmes in universities in Tanzania, this study is therefore intended to fill this gap.

1.5 Research purpose and objectives of the study
1.5.1 Research purpose
The purpose of the study was to investigate the status and practice of IL in Tanzania's four major universities in order to establish the basis for strategies and approaches that could be adopted to introduce and develop effective IL programmes in higher learning institutions in Tanzania.

1.5.2 Research objectives
The researcher anticipated that in one way or another in the four universities involved in the study, there were some forms of instruction that were being offered by libraries, that were intended to equip students with certain library and information skills. Given the purpose of the study it aimed to achieve the following specific objectives:

(i) To identify, assess and evaluate the types or forms of library instruction (as an aspect of IL) that are currently in practice within these institutions

(ii) To identify teaching practices among lecturers so as to determine their strengths and or weaknesses regarding the promotion of IL skills among students

(iii) To identify areas of weakness and strength concerning IL skills among students

(iv) To identify obstacles or barriers that bear on the effective implementation of IL programmes

(v) To propose a suitable IL programme approach that can be adopted by higher learning institutions in Tanzania

1.6 Research questions

From the above objectives, the study was guided by the following research questions:

(i) What is the state of library instruction (as an aspect of IL) with respect to the following:
- Type of instruction
- Methods of delivery and their effectiveness
- Staff involved in teaching IL (are library staff and academic teaching staff involved in teaching IL?)

(ii) What are the teaching practices or methods that are used by lecturers promoting IL knowledge and skills among students?

(iii) What is the level or state of IL competence among students in relation to:
- Information searching skills using electronic and non electronic sources of information?
- Skills and levels of literacy in the use of various computer applications?
- Knowledge and skills in information evaluation?
- Knowledge and skills in information organisation?

(iv) What are the barriers that influence effective implementation of IL programmes?
- University policies
- Availability of resources
- Attitudes and behaviours among staff and students

- Knowledge, skills and competence among staff in teaching IL
- Time and sufficient staff

(v)   What strategies and what models can be adopted for the effective implementation of IL programmes?

1.7   Definition of key terms

In this section definitions for key terms used in the study are given. The terms that are defined are academic library, information, information skills, information society, knowledge, library instruction, life-long learning, and user education.

1.7.1   Academic library

Libraries attached to tertiary academic institutions (above secondary and high schools level) serving the teaching and research need of students and staff (Feather and Sturges 2003:3). According to Prytherch (2000:3) academic libraries have a role in the education process far beyond the provision of books and other materials.

1.7.2   Information

In the literature the concept of information is a controversial term as there is little consistency in the way in which the term information is used and defined thus resulting in an assumption, probably incorrect, that there is a broad underlying definition of information that encompasses all uses of the term in all fields that is commonly and correctly understood (Norman 1986:5).

Low (2000:21) for example, defines information as contact that adds new meaning or somehow changes events, lives or experience. Information may be in a form of facts, opinion or algorithms and may be transmitted in many forms as audiovisual, sight, sound, touch, taste and smell which are not exclusive and can be mutually inclusive as in multimedia presentations of information. Along the same lines, Laurini (2001:42) and Feather and Sturges (2003:244) define information from a meaning perspective as data that has been organised or processed meaningfully to give meaning that can be communicated and interpreted by the recipient in order to draw conclusions for making

decisions. Information is also seen as what human beings use to transfer their knowledge into when they want to communicate it with other people (Orna and Pettitt 1998:20).

1.7.3   Information literacy

Information literacy is a term in the library and information profession that has received many definitions. However most of the definitions are adapted from a definition given by the American Library Association (ALA) stating that:

> *to be information literate, a person must be able to recognise when information is needed and have the ability to locate, evaluate, and use effectively the needed information for effective problem solving and decision making* (American Library Association 1989).

According to Lloyd (2003) an information literate individual delivers achievable outcomes that relate to identified information competencies and Marais (1992) defines information literacy as: "the process of acquiring knowledge of attitudes towards and skills in information, as a major determinant of the way in which people exploit reality, development, live, work and communicate in an information society" (Marais 1992:75).

As already pointed out above there are so many other definitions of IL, for example see also Shapiro and Hughes (1996) and Webber and Johnson (2002). However, for all the definitions the central emphasis is to empower an information user with knowledge and skills that extend beyond the use of specific media or a particular library as was the practice in "library instruction' and 'user education". Information literacy is intended to provide knowledge and skills that enable information users to use information effectively and intelligently in order to survive in the information age. Being information literate can be seen as a survival strategy for life-long learning in the information age.

1.7.4   Information skills

These are skills that can be used in the location and interpretation of information such as using the index of a book, locating materials on library shelves and conducting an on-line search (Feather and Sturges 2003:303). In other words information skills are skills that enable the use of various information sources and tools.

1.7.5 Information society

The concept of information society has its history as far back as 1960s (Martin 2005:4). According to May (2002:50) the term information society can be traced to the work of Flitz Muchlup who categorised knowledge and information tasks separately from normal industrial and social activities. According to May (2002) Muchlup identifies five sectors (education; media of communication; information machine; information services; other information activities) that can be assigned economic values. Muchlup's work was followed by the views by Drucker (1968) who argued that the economic base of the post war period had shifted from manual to knowledge work and that the centre of gravity of social expenditure changed from goods to knowledge. Thus Drucker (1968:40) suggested that past progress based on acquisition of experience had to be replaced by systematic, purposeful, organised information as the resources that would be deployed to advance society.

In mid 1970s Porat's report for the US government concluded that the US was fast becoming an information society because the information sector accounted for over half of all economic activity (May 2002:6). Further to this report, Dizard (1982) conceptualised three stages in the shift towards information society in America. The three stages were:

- Large corporations deploying and developing various information technologies to produce new technical products
- New 'tools' taken up by information industries and services
- The appearance of new networks that would transform the flows of information throughout society (Dizard 1982:7).

According to May (2002:6) it is in Dizard's third stage that the social impact of these new technologies became clear and the notion of progress towards the information society through the widening deployment of ICTs continues to be influential today.

The term information society thus refers to a society where information rather than material good has become the chief economic, social and cultural motor of daily life (Feather and Sturges 2003:303). In this society individuals who are able to access and use

vital information in an effective way are considered to have the most likelihood of succeeding in their social, academic, economic and cultural endeavours.

Although information has always existed and has been used by people in their daily activities, long before the term information society was introduced, its use and its implications within the society had been accelerated by extensive use of computers and other electronic and audiovisual media (Feather 1998:205). For example, May (2002:4) contends that the emergence of the Internet as an increasingly mass medium has prompted a major expansion of interest in the information society. While developing countries have not reached a situation where their economic, social and cultural activities can be considered to depend on information as a major vehicle for their activities as reflected in the general definition of information society, due to their low level of economic and telecommunication standards, their policies in various economic and social plans are influenced by global information society trends and initiatives.

1.7.6 Knowledge

Knowledge is a complex concept to define because it comprises a variety of aspects and is hence difficult to pin down in distinct categories (Styhre 2003:49). In different languages such as Greek, German, French and English knowledge has different meanings depending on which particular context is being referred to. It is from this understanding that, Styhre (2003:50) acknowledges that the concept of knowledge is one "deeply imbued with ontological and epistemological qualities". In lexical definitions knowledge is defined as:

- State of knowing
- Familiarity, awareness or understanding gained through experience or study
- The sum or range of what has been perceived, discovered or learned
- Learning erudition
- Specific information about something
- Carnal knowledge

However, according to Styhre (2003:50) these definitions are limited in providing a conclusive explanation of the concept. Explaining further about the concept of

information, Styhre (2003:51) points out that knowledge can mean knowing something (know that) and knowing how to know (know how). Know-that refers to prepositional knowledge making statements and predictions of the outside world. On the other hand, Laurini (2001:42) points out that knowledge is derived information about information. Through analysing and synthesising information, knowledge can be generated. Knowledge presupposes a fixed point in time where some insight or belief qualifies as knowledge. Knowledge is thus what continuously unfolds as we make use of knowledge in action. In totality therefore, the concept of knowledge embodies a variety of different categories of skills, know-how, experiences, beliefs, capabilities and so fourth (Styhre 2003:50).

1.7.7 Library instruction

In the library and information science literature the term library instruction is in most cases used interchangeably with other terms such as user education, bibliographic instruction, library use instruction and library orientation. According to McCrank (1992:488) library tours or library orientation inform the user about the resources available in the library, while user education, bibliographic instruction and library instruction step beyond orientation and deal with utilizing the collection as a whole and are usually applied to the individual library situation.

It is from this understanding that Prytherch (2000:756) defines user education as a programme of information provided by librarians to enable them to make more efficient, independent use of the library's stock and services. He concludes by noting that user education is also termed library instruction and library orientation. The relationship between the two terms (library instruction and user education) is that library instruction is mainly intended to orientate a person to use a specific library while on the other hand user education is mainly intended to help a library user to become familiar with resources and services within a specific library. In other words user education is broader than library instruction.

1.7.8 Life-long learning

Life-long learning is defined by World Initiative on Life Long Learning (WILL 1994:5) as:

> *a continuous supportive process which stimulates and empowers individuals to acquire all the knowledge, values, skills and understanding they will require throughout their lifetimes and apply them with confidence, activity and enjoyment in all roles, circumstances and environment.*

Life-long learning is also defined as the process where by, people continue their own education by formal or informal means, training courses, academic courses, work-based activities or discussion groups (Prytherch 2000:451). On the other hand Behrens, Olen and Machet (1999:19) define life-long learning as "a process of continuing on a path of education through life". The importance of life-long learning is visible in the information age and technological advancement and employment situation in which short-term contracts; self-employment and employment at home while communicating with the workplace by phone or fax or modem (tele-working) are expected to be common (Prytherch 2000:452)

1.7.9 User education

The concept of user education as it is used in the library profession is rather confusing mainly because it is often used interchangeably with other terms like 'library instruction", "user instruction", "reader education" and so on. The common denominator among these terms is a reference to organised programmes practiced across libraries to enable library users to acquire skills to allow them to use the library. User education can therefore be defined as training, whereby a library user is educated to become competent and independent of using a specific library. Behrens (1993:124) points out those current definitions of user education accentuate the effective use of the library and not necessarily the effective utilization of the information to which the library provides access.

1.8 Scope delimitation of the study

Due to financial constraints the researcher was not able to conduct the study in all universities in Tanzania. As a result the study was confined to four universities namely

Sokoine University of Agriculture (SUA), University of Dar-Es-Salaam (UDSM), St. Augustine University of Tanzania (SAUT) and Iringa University College (IUCO) of Tumaini University out of a total number of ten universities in Tanzania. The study involved librarians, teaching staff and undergraduate students. Two of the selected universities are state owned while the other two are private universities owned by religious institutions. The four universities were chosen for two main reasons. The first reason was to get a balanced representation for the two sectors offering university education in Tanzania. Secondly, the selection took into consideration the need to include two bigger universities in terms of the number of students and staff from each sector.

1.9   Justification for and significance of the study

Very often day-to-day poor academic performance by students is attributed to low intellectual ability, the cultural environment or linguistic reasons (Trueba and Bartolome 1997). While that stands to be true, on the other hand, other important teaching and learning variables such as teaching methods, effective use of teaching and learning resources such as audio-visual aids and other information resources in general are often paid lip service only in the whole process of teaching and learning.

Taking Sokoine University of Agriculture as an example, due to the high failure rate among undergraduate students in the previous four years, in 1998 a University Task Force was formed to investigate the reasons leading to that failure. Among the reasons that were found were: poor background in basic science subjects and poor communication skills that included poor English language expression both for spoken and written English as well as poor academic content presentation. Poor academic expression can be due to a number of reasons among them being poor access to vital information resources /sources or lack of knowledge and skills to access, retrieve, evaluate and finally present scholarly information. It is in recognition of this basket of problems that the importance of information literacy and information literacy interventions lie.

As information providers and educators, librarians in many countries have realised the challenge facing them in educating students and other people at various levels. Bundy (2004b) notes that librarians have recognised that in an information intensive society the crucial divide among people is the understanding and effective operating ability that is derived from IL. Thus librarians have realised the need for and the importance of information literacy, hence the need to introduce effective information literacy programmes in their respective institutions. From the same perspective, East Africa, for example, during the East African Public University Librarian's Conference held in Bagamoyo-Tanzania from 17-19 October 2002, recommended the integration of information literacy (IL) into the University undergraduate curriculum by making information literacy compulsory and examinable for all 1st year undergraduate degrees. However, it has remained the task of each individual university to develop its own method of implementing that recommendation.

While the need for and importance of IL programmes for students is widely acknowledged, there is a debate as to how best IL programmes can be delivered. Should IL programmes be taught as a stand alone, credit earning course or a credit-earning course taught as part of an existing course? In all cases there are some implications, for example, the question of who should be responsible for teaching IL programmes. Should IL be taught by librarians, teaching staff or both librarians and teaching staff? On the other hand students' responses and attitudes to IL can also influence the way the programme is to be delivered. All these alternatives need to be studied carefully in order to come up with a viable working model for the delivery of IL programmes.

With the deliberations from the East African Public Universities Librarian's Conference held in Bagamoyo and observing persistent weaknesses in information skills among students at Sokoine University of Agriculture, the library at Sokoine University of Agriculture thought it necessary to put an IL programme in place. In a move to implement this, the library, among other items included an IL component in its five year strategic plan for the years 2003/4-2007/8.

At the same time Tanzanian university libraries are in their final stages of launching a consortium to be known as Consortium of Tanzania University Libraries (COTUL). Upon the platform of COTUL various issues related to library and information work such as workshops, resource sharing and other professional activities will be carried out jointly. IL programmes are one of the professional aspects that can be undertaken jointly by consortium members. Since no comprehensive study on IL has been undertaken in Tanzania it is anticipated that this study can provide useful recommendations that can be adopted by consortium members.

In summary, the importance and significance of this study can be seen under the following areas: Firstly, professionally it was anticipated that this study would generate information that would be shared and be used by information professionals in Tanzania in particular those in higher learning institutions, to arouse interest and improve knowledge and to be able to introduce IL programmes in a more comprehensive and effective way.

Secondly, the study was intended to help to create consciousness and raise awareness among education stakeholders, on the meaning, importance and general contribution of IL in the whole process of teaching and learning in the information age. A clear understanding of IL will allow it to be given its due weight and attention in the education arena. Lastly,for the researcher as an academic librarian this study would widen his knowledge and understanding in the area of IL as well as broaden his research skills.

1.10   Summary

This chapter has introduced and identified the nature and problem of the study; that is to investigate the status and practices of IL as a tool for teaching and learning in Tanzanian Universities. The chapter has noted that the technological developments of the 21st century demand and necessitate that people acquire adequate information literacy skills in order to cope with various changes that are taking place in all aspects of daily human activities. The chapter has also established that the contemporary theoretical framework underpinning IL in the education sector is essentially influenced by learning theory. Also in this chapter the need for educators (including librarians) in African countries and

developing countries in general, to address IL as an important education issue has been discussed. It has been identified that students at various education levels need be exposed to the knowledge and skills that would develop their intellectual abilities of reasoning, critical thinking and preparing them for life-long learning. IL is seen to be an appropriate means of achieving this objective.

The urgency to address IL especially in higher education learning institutions in Africa is timely and very pertinent given the fact that in most African countries students join higher learning institutions with little or no basic information skills because the lower levels of their education do not provide them with those skills. The reason behind this problem is that school library systems in Africa are weak and poorly resourced, hence they do not expose students to information technologies and skills in using various information resources in an effective way. At the same time many universities and other higher education institutions in Africa do not provide meaningful programmes that would otherwise improve students' information skills.

According to Breivik (1998:2) an educated graduate in the 21st century will no longer be defined as one who has absorbed a certain body of factual information, but as one who knows how to find, evaluate and apply needed information. Therefore it is the responsibility of universities and other learning institutions to produce such graduates. Through cooperation between librarians and academic teaching staff, IL can be used to meet this task. As it will be shown in chapter three, the literature indicates that in the developed countries initiatives undertaken by librarians and teaching staff towards IL is successful. It is therefore upon librarians and their teaching staff colleagues to start following this path.

The purpose of this study embodies an attempt to fill this gap by investigating the status and practice of IL in four universities as a segment of higher learning institutions so that in the final analysis the study can arrive at a working plan on how effective IL programmes can be introduced or improved upon in Tanzania. It also sought to add to

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understanding of the current theory on IL by investigating the application of the concept in a situation with little history of the practice of IL.

Chapter Two

Context of the study

2.1 Introduction

This chapter introduces some important aspects concerning Tanzania as a country. The location, climatic conditions, geographical features, population, economic situation, government and political system are briefly discussed. The chapter also introduces the education system in Tanzania and gives a brief history and overview of the four universities involved in the study.

2.2 Location

The United Republic of Tanzania came into being on 26th April 1964 after the then Republic of Tanganyika united with the Peoples Republic of Zanzibar. Tanganyika obtained her independence on 9th December 1961 from the British while Zanzibar obtained its independence on 12th February 1964 from the Sultanate of Oman.

Tanzania is located in East Africa between longitude 29 and 41 degrees East and latitude 1 and 12 degrees South. Within East Africa, Tanzania is the largest country with an area of 945,000 square kilometres of which 62,000 square kilometres are water and swamps (URT 2003a). It stretches from North to South for about 1500 kilometres and from East to West for about 1600 kilometres. Eight countries border Tanzania, namely Kenya and Uganda in the north, Burundi, Rwanda and Democratic Republic of Congo (DRC) in the west and Zambia, Malawi and Mozambique in the south. In the East lies the Indian Ocean.

Map 1:   **Tanzanian map showing its boundaries (Photius 2000).**
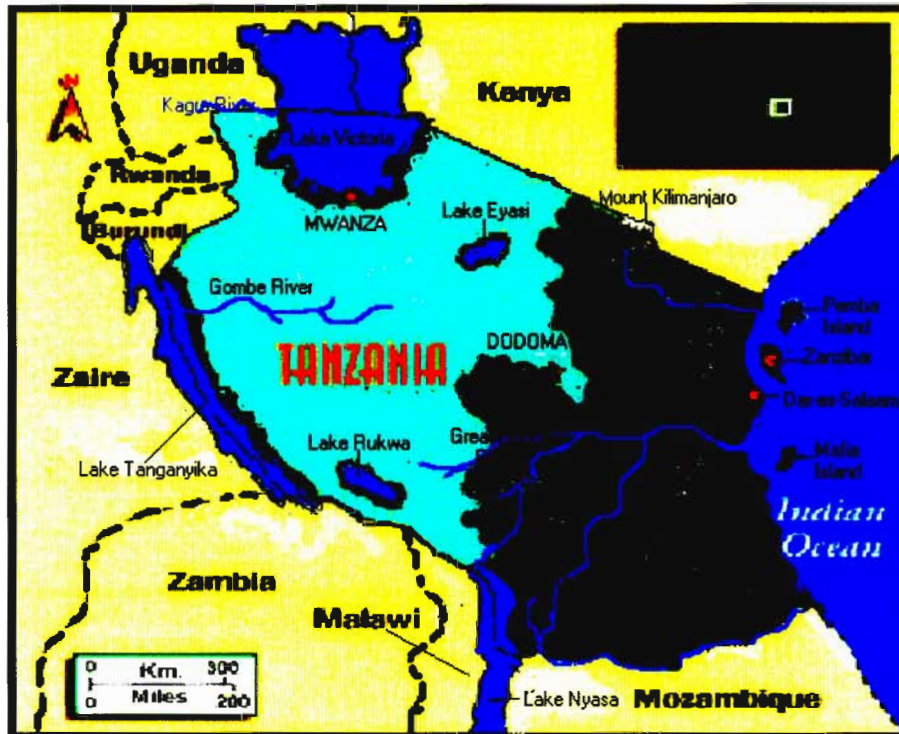
2.3   Climate and geographical features

Tanzania has a tropical type of climate. The climate is however mitigated by variations of altitude, which greatly influence temperatures, and rainfall. There are mainly three climatic zones in Tanzania: the coastal strip which includes the Islands of Zanzibar and Pemba; a Central plateau and the Highlands. The Rift Valley runs from north east of Africa through central Tanzania and Mount Kilimanjaro, the highest mountain in Africa as well as the second highest mountain in Tanzania, Mount Meru are found in Tanzania (URT 2003a)

Tanzania also features Lake Victoria, the second largest fresh water lake in the world and the largest in Africa as well as Lake Tanganyika, the second deepest lake in the world. (URT 2003a)

2.4 Population and ethnic composition

According to the Tanzania's 2002 national census, Tanzania has a population of 34,443,603 of which 33,461,849 are from Tanzania mainland and 981,754 are from Zanzibar (URT 2003b). Tanzania has more than 120 ethnic groups with different cultures and different languages or dialects (Omari 1995:23). Despite this heterogeneity of ethnic groups, they all co-exist peacefully with their different traditions, culture, languages and social system. In terms of language, Swahili, which is spoken fluently by almost all ethnic groups, is the national language. Swahili is therefore used in all official government communication, parliament and all official business. On the other hand, English is used for international communication and is used as a medium of instruction both in secondary schools and at institutions of higher learning.

2.5 The economy

Since the early 1980s Tanzania's economy suffered several shocks with severe destabilizing effects. These shocks included the late1970s and early 1980s world oil price crisis that affected the entire world economy, the collapse of East African commodity prices, drought that led to poor agricultural production, the break-up of the East African Community and the 1978/79 Tanzania-Uganda war. Coupled with a poor policy regime these events culminated in severe economic crisis (URT 2003c). Tanzania is thus one of the twenty-five poorest countries of the world.

Agriculture is the foundation of the Tanzanian economy. Agriculture accounts for about half of the national income, three quarters of merchandise export, is the primary source of food and provides employment opportunities for about 80% of Tanzanians (URT 2003c) Tanzania's per capital income in 2003 was estimated to be about USD 277. Life expectancy at birth dropped from 50 years in 1990 to only 44 years in 2001. Infant mortality remains relatively high with 78.4 per 1000 in 2004 (World Bank 2006). Due to her economic problems since the mid 1980s Tanzania has gone through the implementation of a number of economic adjustment programmes such as National Economic Survival Programme (NESP) in 1981, Structural Adjustment Program (SAP) of the International Monetary Fund (IMF) in 1986 and the Economic Recovery

Programme (ERP) in 1986. The latter was a three year programme launched by government and greatly influenced by the International Monetary Fund and the World Bank (WB). Other programmes include Economic and Social Action Plan (ESAP) in 1990. In 1996 the government of Tanzania committed itself to a three-year programme known as Enhanced Structural Adjustment Facility (ESAF) underpinned by a Policy Framework Paper (PFP) (URT 2003c). Through various organisations such as EU and WTO, Tanzania is currently involved in various local, regional and international economic initiatives that are intended to increase and develop the economic growth. Some of these initiatives include National Strategy for Growth and Reduction of Poverty (NSGRP), AGOA, ACP, NEPAD and Canadian Initiative.

To some extent those programmes and initiatives have lead to progress in restoring macro economic stability. After years of economic stagnation, the gross national product (GNP) has picked up recently, although it is still well below the level required to make a significant dent in current poverty level. Tanzania has managed to raise her GNP from 3.6 in 1995 to 6.7 in 2004 (URT 2005b). The inflation rate has been controlled and reduced from 21% in 1996 to 4% in 2005 (URT 2005b) The GDP growth has accelerated from 4.2% in 1996 to 6.5% in 2005 (URT 2005b). Foreign reserves are now sufficient to cover seven months of imports of good and services compared to only two months in 1995 (URT 2005c). This rate of economic growth has enabled the Tanzanian government to make profound achievements in various sectors including infrastructure, education, health and other social service deliveries.

2.6   Government and political system

The Government of the United Republic of Tanzania is a unitary republic based on multiparty parliamentary democracy. The President of the United Republic is the Head of State, the Head of Government; and the Commander-in-Chief of the Armed Forces. The Executive of the United Republic comprises the President, the Vice-President, President of Zanzibar, the Prime Minister, and the Cabinet Ministers. The Government of the United Republic of Tanzania has authority over all Union matters in the United Republic and over all other matters concerning Mainland Tanzania. The Revolutionary

Government of Zanzibar has authority on Tanzania Island (Zanzibar) over all matters, which are not Union matters (URT 2003e). Since 1992 Tanzania became a multi party system country with more than seventeen parties, before then it was a one party state. Chama cha Mapindizi (CCM) has been the ruling party before and after the introduction of multi party system (URT 2003e).

2.7 Education system

In any country education is a vital aspect for ensuring that the country produces human resources skills among its citizens that are required for its social and economic development. It is through the country's good education system (both qualitative and quantitative) that enables it to get an adequate, knowledgeable and skillful work force in all aspects of the social and economic sectors. Without a good education system the country cannot have adequate teachers, doctors, engineers, pharmacists, nurses, lawyers and other skilled personnel in other sectors thus the country would be deprived of its opportunity and ability to develop. This section introduces the state of the education system in Tanzania.

2.7.1 Education for self-reliance (ESR)

Before discussing the general education system in Tanzania it is important to make reference to Education for Self-reliance (ESR). The ESR policy was adopted in 1967 following a policy paper carrying the same title issued by the then President Julius Nyerere. For a number of years since its inception in 1967 the ESR marked a significant influence in Tanzania's education system and policy in general.

Tanzania, like other African countries inherited her education system from her colonial masters. During the colonial period and until 1964 education in Tanzania was provided on the basis of race. There were schools for Whites, Asians and Africans. Schools for Whites followed by Asian schools received more resources. African schools were few in number and most of them were under the auspices of Christian churches. The colonial education system was considered elitist in that it prepared the recipients for white-collar jobs thus divorcing them from their society and more especially breeding among the

students contempt for manual work. The ESR emphasised the need for curriculum reform in order to integrate theory with the acquisition of practical life skills. It also urged linkage of education plans and practices with national socio-economic development and world of work (TMoEC 1995). The ESR, on the other hand, was highly prescriptive, castigating elitism, arrogance, theoretical education and anti rural attitudes among schools and university populations. It glorified manual work and instructed that all schools, including the university had to engage in productive and manual labour (Omari 1991:184).

ESR policy, according to Nyerere, was necessary in order to rectify the deficiencies of the education system inherited from the colonialist, by changing the general orientation of education so that:

> *The education provided can engage the development of each citizen of three things; an enquiring mind; an ability to learn from what others do and reject or adapt it to [his] needs; and a basic confidence in his own position as a free and equal member of the society; who values others and is valued by them for what he does and not for what he obtains.* (Nyerere 1968:279).

According to Kassam (1995:93) the vision of ESR policy was for education to work for the common good, foster co-operation and promote equality. Further it had to address the realities of life in Tanzania. With that vision, some changes were proposed including the following:

- Education to be oriented to rural life
- Teachers and students to engage together in productive activities and students to participate in the planning and decision-making process of organizing these activities.
- Productive work such as poultry keeping, gardening, farm production to become an integral part of the school curriculum and provide meaningful learning experience through the integration of theory and practice.
- The importance of examinations to be downgraded.

- Children to begin school at age 7 so that they would be old enough and sufficiently mature to engage in self-reliant and productive work when they left school.
- Primary education to be complete in itself rather than merely serving as a means to higher education.
- Students to become self-confident and co-operative, and develop critical and inquiring minds.

ESR policy also brought several other measures within the education system including:

- Nationalization of all schools in 1968 to make them government run and open to all pupils from various denominations and religious groups
- In 1973 secondary schools were instructed to diversify and vocationalise their programmes into agriculture, technical, commercial and domestic science streams.

At university level according to Omari (1991) the university had to re-define and restructure itself in order to conform to the policy. In 1974 a regulation was passed that directed the university not to admit students directly from school but rather take experienced adults from workplaces. New university admission conditions were introduced that included:

- 13 years of schooling
- Completion of six months military training (National Service)
- Having worked for a minimum of two years on "permanent basis"
- A positive report and recommendations from employer with respect to good character and work habits
- A positive report and recommendation from relevant organs of the party with respect to character and political consciousness (Omari 1991:185-187)

The educational reform under ESR according to Samoff (1990) met with success and some failure. The policies were never fully implemented and had to operate against a background of severe resource shortage. On the other hand Ishumi and Maliyamkono (1995)

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point out that ESR policy failed because it was not properly understood, thus its

Ishumi and Maliyamkono (1995:53) summarize the ESR's policy negatives as follows:

The overwhelmingly negative outcome of the system was the schools' failure to translate the philosophy-cum-policy into the declared objective of 'transforming society' While a handful of schools embarked on model and manageable farms and other viable projects (though, in truth, often with direct or indirect high level official facilitation) many others simply engaged in too many projects haphazardly, bearing little relationship with classroom teaching-learning pedagogical process. They were often carried at the expense of wider knowledge. In many cases the 'self-reliance activities' have remained marginal, extra-curricular digressions commanding no professional respectability or academic recognition within an overall education system that tends to value the cognitive part of the learning process more highly than either the affective or psychomotoric, and which responds to the immediate demands of school tests and examinations before anything else.

2.7.2   Current education system in Tanzania

Due to the economic problems experienced by Tanzania as explained under section 2.6 and other policy issues, the education sector has been affected both qualitatively and quantitatively. According to Mkude, Cooksey and Levey (2003:103) the education system in Tanzania, once considered an appropriate and progressive model for poor third-world countries to emulate, has more recently been singled out for its serious qualitative and quantitative shortcomings. Among the weaknesses in the education sector in Tanzania is the low level of enrolment in all levels of the education system, the low number of schools and higher learning institutions, poor education facilities that include poor buildings, shortage of teaching materials and an inadequate number of teachers. Also, at various levels of education there is an imbalance of student enrolment between boys and girls. Owing to a number of reasons including cultural ones, girls tend to be disadvantaged in terms of access to education. However, some improvements have been made to overcome some of these problems as shall be discussed under section 2.7.2.1 and 2.7.2.2.

The structure of the education system in Tanzania has three basic levels, namely primary, secondary and higher or tertiary education. Two ministries administer education in Tanzania. Primary and secondary school education is overseen by the Ministry of Education and Vocational Training. The Ministry of Education and Vocational Training also administers teacher-training education at certificate and diploma levels. However, the Ministry of Regional Administration and Local Government also manage primary education because primary schools are co-ordinated by local governments at regional and district level. Higher education is under the Ministry of Science Technology and Higher Education. Under the Universities Act No. 7 of 2005, supervision, co-ordination and quality control of universities is overseen by The Tanzania Commission for Universities (TCU). TCU took over that responsibility from The Higher Education Accreditation Council (HEAC). However, planning and service delivery by universities is vested in the University Governing Councils (URT 2003d). Other higher learning institutions are supervised by the National Council for Technical Education (NACTE).

2.7.2.1   Primary and secondary education

This section introduces the state of primary and secondary education programmes in Tanzania. Because of the problems that faced the education sector during the 1980s and early 1990s, in 1995 the Ministry of Education and Vocational Training (MoEVT) embarked on the Education Sector Development Programme (ESDP) as a step towards implementing the Tanzania Education System for the 21st Century. Under ESDP the Primary Education Development Programme 2002-2006 (PEDP) and Secondary Education Development Plan 2004-2009 (SEDP) were launched. PEDP and SEDP are intended to bring both quantity and qualitative improvements for the two education levels.

2.7.2.1.1   Primary education

The education system begins with pre-school which is not compulsory. However, pre-schools are common in urban centres and in most cases children between age three and five attend pre-school. There are 21,105 government and 502 non-government pre-primary school streams with an enrolment of 624,204 and 14,387 pupils respectively

(URT 2005d). Between six and seven years children start primary education that takes a period of seven years. Primary school education is compulsory by law for all children of school going age. A parent who fails to send his/her child to attend primary school education by law can be prosecuted. Swahili is used as a medium of instruction for all subjects while English is taught as a compulsory subject in all state primary schools. However, there are private primary schools that use English as a medium of instruction and teach Swahili as subject.

Under the PEDP programme significant improvements have been realised mainly regarding the student enrolment, school buildings and teacher training. According to URT (2005d) there has been an increase in both student enrolments and school facilities. Primary school enrolment (Std 1-VII) increased from 3.8 million to 7.5 million in 2005 while school age children (age 7-13) who are attending school increased from 55% in 1995 to 95% in 2005. Primary schools have increased in number from 10,927 in 1995 to 14,257 in 2005 thus making an increase of 30%. At the same time the number of prospective teachers (from colleges) has increased from 12,417 in 1995 to 29,952 while teacher colleges have increased in number from 34 in 1995 to 52 in 2005 (URT 2005c). Under PEDP funds for renovating school buildings and constructing additional classrooms for the existing schools have been provided.

2.7.2.1.2   Secondary education

Secondary school education is at two levels: Ordinary level that takes duration of four years (Form I-IV) and Advanced level that takes two years (Form V-VI). Upon the successful passing of relevant examinations at each level, students can join tertiary education colleges for training in a specialised field. Normally ordinary level school leavers go for training at certificate level, while advanced level leavers can join universities or other non university higher learning institutions. English is used as a medium of instruction while Swahili is taught as a compulsory subject.

Secondary school education is not compulsory mainly because of a limited number of secondary schools able to accommodate primary school leavers. For this reason the

number of students enrolled in secondary schools has been very small compared to the number of students who complete primary education. However, under SEDP secondary education is being improved. The number of secondary schools has been increased from 595 in 1995 to 1755 in 2005. Out of 1755 schools 543 are non-government schools. The number of students enrolling in Form 1 has increased from 53,698 in 1995 to 180,239 in 2005. This has increased the number of students attending ordinary level secondary education (Form 1-4) from 183,659 in 1995 to 489,942 in 2005 of which 231,808 (47.3%) are female students (URT 2005d). The number of students who joined higher level of secondary education (Form 5-6) increased from 6,875 in 1995 to 18,893 in 2005 thus enabling the total number of students at this level to rise from 12,716 in 1995 to 34,383 in 2005. Of these 12,763 (37%) were female students. In total secondary schools have 524,325 students in 2005 as compared to 196, 375 in 1995. According to URT (2005c) the target is to have 2,000,000 ordinary level secondary schools students and 250,000 at higher level by the year 2010 (URT 2005c).

In summary, during the past ten years Tanzania has managed to improve the education sector in the following respects:
- The number of schools for both primary and secondary schools has increased
- The number of classrooms, houses for teachers, pit toilets and desks has increased
- The number of female students at all levels has increased

However, more effort is still needed in order to reach the required standard as many schools are still in short of teachers, as well as class rooms, desks and essential educational materials like books, exercise books and chemicals for scientific experiments.

2.7.2.2 Higher education

The Tanzanian higher education system has grown from a relatively simple to a complex one. From only one institution of higher education (University College of Dar-Es-Salaam) in 1961 it now has more than one hundred and forty tertiary training institutions of which more than twenty are higher education institutions (MSTHE 1999). According to MSTHE (1999) tertiary education institutions in Tanzania can be divided into two categories, higher education and non-higher education institutions. Higher education

institutions are those institutions that offer academic/full professional training at degree and postgraduate diploma levels as well as intermediary professional education and training institutions offering career/professional training at diploma and advanced diploma level. Universities, as the highest-level of institutions dedicated to the professional and intellectual development of humankind and society in general, are expected to concentrate on research, teaching and public services or consultancy. On the other hand intermediate institutions of higher education are devoted to human resources development for the middle and intermediate level of occupational structure of society Other, non-higher education institutions are those that offer vocational/paraprofessional education and training at certificate and testimonial level (MSTHE 1999).

Like other social sectors, higher education has been greatly affected by the poor economic performance of the country and by the economic measures such as NESP, SAP, and ERP programmes taken by Tanzania government to rectify ailing economy (Galabawa 1991:50). As opposed to having a focus on the improvement of social services sector such as education and health, to a large extent these programme measures focused on the attainment of economic efficiency and productivity, concentrating exclusively on macro economic performance indicators in areas such as the public sector, and trade deficit, reduced arrears, increased international reserves and so on (Tibaijuka 1987 as quoted by Galabawa 1991:50).

The main problem in the education system in Tanzania has been that since Tanzania achieved its independence in 1961, until 1995 the ownership and operational control of higher education institutions has been mainly public. Expenses for higher education, including students' living costs have been entirely financed by the public budget (MSTHE 1999). The National Higher Education Policy of 1999 details problems facing higher education in Tanzania, including appallingly low student enrolment and poor financing (MSTHE 1999). Slow growth in enrollments in higher education as experienced in Tanzanian according to Mkude, Cooksey and Levey (2003), contrasts with the trend in sub-Saharan Africa overall, where enrolments grew by over sixty per cent during the eighties.

However, given various government initiatives to reform the education system that began in 1995, some improvements are taking place. The government's role is now changing from that of a sole higher education provider to that of a facilitator in the provision of education. The government has encouraged private sector involvement in delivering and servicing higher education. This has enabled the establishment of a number of private higher education institutions. In one way this has enabled an increase for the number of students enrolled for university education. According to URT (2005a) student enrolment in higher learning institutions increased from 14,076 in 1995/96 to 48,236 in 2004/05. This increase is equal to 234%. Of this number female students' enrolment increased from 2,369 in 1995 to 15,782 in 2004/05. The government has also established a framework for supervision, regulation, guidance and provision of incentives for higher education institutions. Some of the outcomes from that establishment are:

- By Act No. 8 of 2001 the government established an Education Authority that is responsible for administering the education fund. Since its establishment until May 2005 the Education authority provided Tanzanian Shillings 12,537,979,195 to government and private institutions to enable them improve their facilities, infrastructure and other activities in general (URT 2005e).

- Provision of sponsorships for students joining higher learning institutions is now based on contract terms. By Act No. 7 of 2004 the government established the Higher Education Loan Board (HELB) that is responsible for providing loans to students pursuing higher education within the country and abroad. Since then there is no direct sponsorship from the government as was previously the case; instead students are required to sign an agreement with the Loan Board and are obliged to repay the loan after completion of their courses and in accordance with the loan agreement.

- Higher education institutions governing bodies have been granted the powers to control their institutions both in theory and practice

- The teaching environment has been improved and curriculum reviews have been made in respective institutions (URT 2005e).

According to MSTHE (1999) higher education in Tanzania can be categorised in two distinct levels of training institutions in higher education provision, namely academic full professional training and intermediary professional education and training institutions. Universities and non-university professional training institutions represent the two levels.

2.7.2.2.1   Non university higher learning institutions

Most of the non-university higher learning institutions are under their respective ministries, public corporations or religious institutions. These institutions offer courses in specialised professions such as finance, management, banking, auditing, land management and evaluation, health, quantity surveying, journalism, administration, public heath, water technology, transportation, telecommunication and others. In most cases these institutions offer ordinary and advanced diplomas.

2.7.2.2.2   Universities

Before 1995 the government offered university education in Tanzania solely through its three universities: the University of Dar-Es-Salaam (UDSM), Sokoine University of Agriculture (SUA) and the Open University of Tanzania (OUT). However, in 1995 the government decided to liberalize the education sector and subsequently enacted the Education (Amendment) Act No. 10. This Act allowed private institutions and individuals to establish private universities. According to MSTHE there are five state universities and five private universities that are fully accredited by TCU.

There are five state owned universities in Tanzania namely University of Dar-Es-Salaam (UDSM), Sokoine University of Agriculture (SUA), the Open University of Tanzania (OUT), Mzumbe University (MU) and State University of Zanzibar (SUZA) established in 2003. UDSM was established in 1970 when it became a fully-fledged university and independent from the University of East Africa. The university of Dar-Es-Salaam has two Colleges namely Muhimbili University College of Health Science (MUCHS) and University College of Lands and Architectural Studies (UCLAS). SUA was established in 1984. Before then it was a Faculty of Agriculture, Forestry and Veterinary Medicine of the University of Dar-Es-Salaam. Moshi University College of Cooperative and Business

Studies (MUCCoBS) formerly Moshi Cooperative College (MCC) became a university college of SUA from September 2004. OUT was established in 1992 and SUZA in 1998. The Mzumbe University (MU) was established by Act No.21 of 2001 as a product of the transformation of the Mzumbe Institute of Development Management (IDM) created in 1972. MU started operating as a university in 2003.

In addition, there are five private universities and almost all of them were established less than ten years ago. As such they are still in their infancy and at the stage of establishing themselves as academic institutions. The private universities in Tanzania are International Medical and Technological University (IMTU) established in 1995; Tumaini University (TU) established in 1996, which has four constituent colleges namely Iringa University College (IUCO), Makumira University College (MUCO), Kilimanjaro Christian Medical College (KCMC) and Waldorf University College (WUCO); Hubert Kairuki Memorial University (HKMU) established in 1997; Zanzibar University (ZU) established in 1998; St. Augustine University (SAUT) established in 1998, which has one constituent college namely Bugando University College of Health Sciences (BUCHC), and Muslim University of Morogoro (MUM) established in 2004.

2.8   Development of library services in Tanzania

2.8.1   Historical background

Libraries and librarianship in Africa are among the oldest institutions and professions respectively (Aina 1991:365). According to Kaungamno and Ilomo (1979:2), in Africa libraries and documentation centres existed in Egypt about 6000 years ago and were used by Egyptian scholars, priests and kings. However, in Tanzania the history of library services can be traced from the colonial period and mainly back to the1940s. According to Nawe (1984:318) before 1940 there were very few libraries in Tanganyika (Tanzania since 1964). The libraries that were established during this time include the Government Secretarial Library in Dar-Es-Salaam established in 1923; the Mineral Resource Library in Dodoma established in 1925; the Mpwapwa Teachers Training College Library established in 1926; the Research and Training Institute Library at Mpwapwa established in 1934, and the Coffee Research and Training Library at Lyamungu, Moshi established in 1930. It was after the Second World War that "semi-public" libraries (partly fee based)

were established. Ilomo (1985:104) points out that during the pre-war period public libraries were non-existent.

According to Ilomo (1985:98) library development in the period from 1945-1980 was characterised by reports and legislative measures. About twelve reports and legislative measures were issued. Among them the following were included:

- Huxley Report, prepared by E. Huxley on behalf of the East African Colonial Government following a survey of library literature provision in 1944.
- Tanganyika Territory Municipalities Ordinance 1946
- Hockey Report: Development of Library Services in East Africa- A report submitted to the governments of East Africa in 1960
- Tanganyika Government. Libraries (Legal Deposit of Books) Act 1962. This provided for one perfect copy of printed matter to be deposited with the then University of Dar-Es-Salaam
- Tanganyika Libraries (Legal Deposit of Books) Order, 1963. Provided for another perfect copy of printed matter to be deposited with Tanganyika Library Services
- Tanganyika Government. Tanganyika Library Services Board Act, 1963. The Act led to the establishment of Tanganyika Library Services (TLS) on the 1st April 1964
- Tanzania Library Services Board Act, 1975. Replaced the 1963 Library Act and extended the Board powers and functions.

During the post war period to 1960, government, special and public libraries began to emerge in large numbers. The libraries that were established during this period included those of East African High Commission, training and research institutes, private and subscription libraries (Ilomo 1985:104). Among the important subscription libraries were those of the King George VI Memorial established in 1956 and Kilimanjaro Native Cooperative Union Library established in the 1940s. The Ismail community[2] also

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[2] Ismaili is a branch of Islam and the second largest Shiha community after the Ithanasharia who are dominant in Iran. There are several sub-groups in Ismaili. Ismaili mainly refers to the Nizari who are followers of Agha-Khan also known to Ismail as Imam Shah Aly Shah. The Ismailis are found primarily in South Asia, Syria, Saudi Arabia, Yemen, China, Tajikistan, Afaghanistan and East Africa.

maintained a network of subscription libraries in the townships where Aga Khan's followers lived. Ilomo (1985:104) further observes that in the 1940s ten out of twenty six government stations (Bomas) had relatively good small libraries and in 1948 a public library was established at the King George Memorial Museum in Dar-Es-Salaam. At the same time plans were under way to establish libraries in town and municipal council offices as well as community centres. Ilomo (1985:108) concludes that the libraries established before 1960 had the following characteristics. They were:

- Unplanned
- Small
- Catered mostly for the minority European and Asian communities
- Staffed by people with other commitments such as welfare officers, schoolmasters and clerks who therefore were generally not satisfactory and had low interest in library work.

Ilomo (1985:108) concludes that the development of library services adequate for the basic needs of Tanzanians dates from after 1960 and the founding of the Tanzania Library Services (TLS) in 1964.

2.8.2   Formation of East African Literature Bureau (EALB)

The EALB was established in 1948 as part of East African High Commission following the Huxley Report of 1945. Among the recommendations from the Huxley Report that led to the formation of EALB were the need for:

- A well thought out massive programme for the production of reading materials in simple English, Swahili and other East African languages
- More libraries and for a comprehensive development plan for these rather than the haphazard and uncoordinated development by individual organisations
- The formulation of a library development scheme that would require the service of professionally trained librarians (Ilomo 1985:105)

The EALB catered for all East African countries namely Tanganyika, Kenya, Uganda and Zanzibar with its headquarters in Nairobi. Regional branches were established in Dar-Es-Salaam, Kampala, Nairobi and Zanzibar in 1951 (Ilomo 1985:105-106). The EALB services ceased in1977.

2.8.3 Formation of Tanzania Library Services (TLS)

According to Wedgeworth (1993:812) the genesis of national wide library system in Tanzania originates from Sidney W. Hockey who was invited in 1960 by the governments of Tanganyika, Kenya, Uganda and Zanzibar to carry out a survey in relation to library services. The terms of reference for Hockey according to Ilomo (1985:110) were:

- To survey the area and present to the various governments plans for the development of free public library services in each territory.
- To advise on the allocation of funds being made by the British Government upon the assumption for recurrent expenditure by territorial governments and to assist in the initial development of services being set up.

In 1960 Hockey submitted a report to East African governments that proposed the following:

- Setting up of a pilot scheme for each territory that would take over the activities of EALB
- Setting up of National Library Services administered by statutory boards consisting of national central libraries located in the capital cities, provincial or regional libraries, district libraries, small branches and a book mobile.
- Setting up of a library school for East Africa (Ilomo 1985:111).

According to Ilomo (1985:111) Tanganyika was the first to accept the report with few modifications. From that report the Tanganyika Government enacted the Tanganyika Library Services Board Act in July 1963. This Act empowered the Board to promote, establish, equip, manage, maintain and develop libraries in Tanganyika. On 1st April 1964, Tanganyika Library Services (TLS) was established as a parastatal organisation under the Ministry of Education with the following tasks:

- To create a flexible and adaptable administrative framework
- To plan the future pattern of the services
- To devise means of securing capital and recurrent funds
- To recruit expatriate librarians to run the new services and to advise a library human resource training programme for local librarians

- To secure suitable sites for library building in urban areas
- To formulate a library plan for inclusion in the first Five Year Plan for Economic and Social Development 1964/5-1968/9
- To determine the relationship between TLS and the other type of libraries

During the first Five Year Development Plan 1964/5-1968/9 the TLS Board planned to build seventeen libraries and the National Central Library (NCL), however, this target was not realised because of financial constraints. The first six libraries were to be funded by the British Government. However, following the political misunderstanding between Tanzania and Britain over Rhodesia's Unilateral Declaration of Independence (UDI) in 1965 the funds were withdrawn by the British Government (Ilomo 1985:112). The Board however, managed to build four libraries including the first phase of the NCL, mainly with funding from Denmark. The Board also built six libraries during the 1969/70-1974/75 Five Year Development Plan. By 1996 TLSB had 15 regional and seven district libraries (Ilomo 1985:112).

Since its inception in 1964 TLS had planned to concentrate and build urban libraries. However following President Nyerere's announcement of 1970 as an 'Adult Education Year', a campaign year intended to eradicate illiteracy by the end of 1975, TLS was forced to embark on the provision of rural libraries much earlier than anticipated (Ilomo 1985: 131). According to Ilomo (1985:131) meagre funds that were available were apportioned for urban and rural library development with the rural libraries being allocated more funds. A mobile library service was introduced in 1970 and by 1973 rural mobile library services were operating in five regions. By the end of the decade TLS was generally regarded as a model for national public library development in Africa (Olden 2006).

However, the rural library services under TLS collapsed in late 1970s due to a shortage of funds with the Directorate of Adult Education in the Ministry of Education taking over the work of distributing books and other reading materials to rural libraries (Ilomo 1985:132).

2.8.4 Library systems in Tanzania

In Tanzania the main library systems that can be identified are:

- School library system
- Public libraries
- Special libraries
- International organisations' and foreign countries' embassy libraries
- Academic libraries

2.8.4.1 School libraries

The Hockey report envisaged the establishment of school libraries under the TLS. From 1964 school libraries started receiving expertise and professional guidance from the TLS. In 1968 the School Library Services (SLS) was established and a UNESCO expert for school libraries was recruited (Rosenberg 2000:30). The UNESCO expert had the following terms of reference:

- To establish in selected secondary schools model school libraries that would become demonstration libraries for teachers, administrators and educators
- To provide advice and assistance to teachers in the selection of materials and the operation of school libraries (Ilomo 1985:134). According to Rosenberg (2000) in 1968 three model libraries were established, one in each of three regions out of twenty regions during that time. This measure however, was later seen to be slow to produce the intended results. As a result, in 1971 a pilot school mobile library service was started serving four regions: Mbeya, Iringa, Morogoro and Dodoma. The aim of this move was to reinforce the book stock of all school libraries in respective areas (Rosenberg 2000:34).

Financial problems led to the collapse of the school library services in 1976. No further model libraries were opened and school mobile library services also stopped. The planned centralisation of acquisition, processing and distribution of services could not take off and at the same time the operations of the existing services were barely maintained (Rosenberg 2000:34). According to Rosenberg (2000:35) the Government of Tanzania has introduced new strategies to revive school libraries. The role of SLS will be

held by the Ministry of Education and Culture in conjunction with local authorities, while the TLS will continue with advisory services development and maintenance of professionalism. Giving her conclusive remarks regarding school libraries in Tanzania Rosenberg (2000:35) pointed out that:

The libraries in government owned primary and secondary schools were dead. The few existing school libraries in Tanzania were run by private organisations.

2.8.4.2 Public libraries

These are libraries operating directly and owned by TLSB. Their functions are to provide educational, cultural and recreational activities to the general public. However, due to the fact that school libraries are poorly stocked and almost non-existent, secondary school students relied heavily on these libraries. Students like other members of the public are required to register for their membership and pay a fee before being allowed to use the facilities. Two types of fees are in use: Annual membership charged at TAS[3] 3,000, 2,000 and 1,000 for adults, students (in secondary schools and tertiary institutions) and primary school students respectively. This fee allows a member to use any public library in the country without any extra charge. The other fee is TAS 500 paid by a non member on daily basis when ever such a person uses the library (Matovelo and Lwehabura 2004:18)

2.8.4.3 Special libraries

These belong to research institutions, government ministries and departments, industries and parastatals. Special libraries in research institutes are found in various parts of Tanzania depending where a particular research institute is located. However, many government libraries are found in Dar-Es-Salaam where most of the government ministries are based. Most of these libraries are relatively small and their quality varies from one to another.

2.8.4.4 International organisations' and foreign countries' embassy libraries.

The popular libraries under international organisations and the foreign countries' embassy libraries category include the British Council Library, United States Information

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[3] 1USD is about 1200 Tanzania Shillings.

Services (USIS) library, Goethe Institute Library (under the Germany Embassy), French Embassy and Russian Embassy libraries, FAO, UNICEF and UNDP. Most of these libraries provide membership subscription to the general public for using the libraries and borrowing various materials such as books, video cassettes and CD-ROMs. These libraries, especially the British Council Library and USIS Library, are well stocked and provide adequate services. They are also heavily used by secondary and tertiary institution students.

2.8.4.5 Academic libraries

These libraries serve universities, colleges and other tertiary institutions, and they are scattered around the country. Most of them are relatively well stocked with books and other information resources. These libraries also have relatively well trained personnel. Descriptions of individual university libraries involved in the study are given under 2.9.

2.9   Profile of the universities involved in the study

This section introduces the four universities involved in this study. These universities are Sokoine University of Agriculture, University of Dar-Es-Salaam, Iringa University College (of Tumaini University) and St. Augustine University of Tanzania.

2.9.1   Sokoine University of Agriculture (SUA)

2.9.1.1 Historical background

Parliamentary Act No.6 of 1984 established Sokoine University of Agriculture on 1st July 1984. The University was created from the former Faculty of Agriculture, Forestry, and Veterinary Science of the University of Dar Es Salaam. However, its history dates back to 1964 when it started as an Agricultural College offering diploma training in agriculture. With the dissolution of the University of East Africa and consequent establishment of the University of Dar-Es-Salaam the college was elevated to a Faculty of Agriculture of the University of Dar-Es-Salaam (SUA 2003a:1)

The university was renamed as Sokoine University of Agriculture after the late Edward Moringe Sokoine who was Prime Minister of Tanzania for two different periods; 13th

Feb.1977 to 07th Nov.1980 and 24th Feb.1983 to 12th April 1984 when he died in a road accident. The vision of the Sokoine University of Agriculture (SUA) for the 21st century is to be a center of academic excellence in agricultural, natural resources management and related fields with an emphasis on imparting practical skills, entrepreneurship, research and the integration of basic and applied knowledge in an environmentally friendly manner for the benefit of the country (SUA 2003a:1)

2.9.1.2 Location

The University's main campus is situated on the slopes of Uluguru Mountains in Morogoro town about 200 km west of Dar-Es-Salaam. The University is made up of four campuses, namely the Main Campus, Solomon Mahlangu Campus, Olmotonyi Campus and Mazumbai.

2.9.1.3 University Campuses
2.9.1.3.1   Solomon Mahlangu Campus

The Solomon Mahlangu Campus (SMC) was formally Solomon Mahlangu African National Congress (ANC) Freedom College. It became one of SUA's campus in 1992 when the then African National Congress Freedom College was handed over to Tanzanian government following the ANC's freedom fighters returning to South Africa subsequent to the formation of a democratic government. The SMC is located about five km on the western outskirts of Morogoro town.

2.9.1.3.2   Olmotonyi and Mazumbai Campuses

The Olmotonyi campus is in Arusha town while Mazumbai campus is in Lushoto district in Tanga region within the Usambara highlands in North-eastern Tanzania. The Omotonyi and Mazumbai campuses do not accommodate students on a permanent basis; they are only used for field practice by students specialising in forestry programmes.

2.9.1.4 Faculties and programmes

The university has four Faculties namely Agriculture, Forestry, Veterinary Medicine and Science. The University also has six Directorates/Institutes namely the Institute of Continuing Education (ICE), the Development Studies Institute (DSI), Directorate of

Research and Postgraduate Studies (DRPGS) and Sokoine National Agricultural Library (SNAL). Others are the Computer Center (CC), SUA Center for Sustainable Rural Development (SCSRD) and SUA Pest Management Center (SPMC).

The university offers undergraduate training, leading to the award of Bachelors degrees, in Agriculture General, Agricultural Economics and Agribusiness Horticulture, Animal Science, Home Economics and Nutrition, Food Science and Technology, Agronomy, Agricultural Engineering, Forestry, Veterinary Medicine and Science in Biotechnology, Laboratory Sciences and Environmental Sciences and Management. The university also offers training, leading to the award of Master of Sciences and PhD in the respective fields of Agriculture, Forestry and Veterinary Medicine.

The University statistics indicate that the number of undergraduate enrolments have increased from 144 in 1984/85 to 842 in 2002/2003 (SUA 2002:34). Since 1985 when it started offering degrees as an independent university SUA has produced a total of 672 postgraduates. Of these, 46 hold PhDs while the rest have Master's degree in the various agricultural and related fields (SUA 2002:34). The university also has about of 260 academic members of staff of whom more than 85% have PhDs.

2.9.1.5 Library services

Library services at SUA are offered by Sokoine National Agricultural Library (SNAL). SNAL was established by an Act of Parliament of 1991, which elevated the former University Library to a National Agricultural Library. SNAL is the single largest agricultural library in Tanzania. SNAL serves both as a University Library as well as National Agricultural Library. It is therefore open not only to members of the University community but also to other people engaged in agricultural related research from within the country as well as scholars from all over the world.

The library is located at SUA main campus. It has a branch library at Solomon Mahlangu Campus (SMC). The SMC Library caters for students, staff and other readers residing at SMC. The SMC Library is still small in terms of collections and services; therefore the main campus library is the main information source for SMC students. In addition the

library has 55 computers of which 14 are at SMC while 31 are at the main campus. The computers are used for the Internet and CD-ROM searching. Currently the library has 183 CD-ROMs.

2.9.1.5.1 ICT Unit

Since 2000 SNAL started the initial stages of library computerization. Since then the library developed two databases: SUALIB for books and SUAPER for periodicals. The two databases forming SNAL's Online Public Access Catalogue (OPAC) use the CDS-ISIS system and is accessible to all students and staff through a Local Area Network (LAN). The library has seven computer terminals used as OPACs; two are at SMC campus while five are at the main campus. The OPAC is accessible through the University website where there is a link for the library web page. A circulation module has also been developed. However, the computerization of the library and building the catalogue in the database is still in progress. More than eighty percent of all the library holdings can be searched in this catalogue. However staff and students can access the OPAC from anywhere within the campus through the university web site where there is a link for the library. The ICT unit provides technical and managerial support for ICT related functions within the library. Staff in this unit also maintain the library ICT system.

2.9.1.5.2 Library collections

SNAL is a legal depository of materials published in Tanzania and collects materials published elsewhere about Tanzania. It is also a depository for publications from the United Nations' Food and Agricultural Organisation (FAO) and of all unpublished theses and dissertations from SUA graduates and its staff. The library collection is diversified in scope and represents the various disciplines, which have developed over time at SUA (SUA 2003b: 212). SNAL has three main collections namely:

- Special collection
- General book collection
- Periodicals

In the special and general book collections the materials are arranged according to Library of Congress Classification that is searchable using an OPAC while periodicals

are in two arrangements; alphabetically by title and by Library of Congress Classification.

2.9.1.5.2.1 Special collection

This collection is almost treated as the East Africa collection of UDSM. It consists of books published in Tanzania that are mainly acquired through legal deposit as well as books with coverage on Kenya and Uganda. Other materials in this collection include the following:

- Government and other official publications from parastatal organizations, universities and non governmental organizations
- Theses and dissertations submitted to Sokoine University of Agriculture and those of SUA staff submitted to other universities
- Annual reports of various international organizations, mainly those dealing with agricultural related fields
- Various local agricultural research reports by SUA staff and other researchers in Tanzania
- Maps and atlases

The special collection is used as open access for all staff and students, however it is intended to be used for reference, therefore books in this section are not for borrowing and can be only be used within the section.

2.9.1.5.2.2 General book collection

The library contains about 90,000 volumes of books on various aspects of agricultural sciences and other related fields including veterinary and forestry. There are also books in pure and applied science, humanities and social sciences. This collection is used on an open access basis. However there is a small section with books reserved by lecturers that are considered to be in great demand by the students. This section is known as the Special Reserve Collection. Books in this section are borrowed on an hourly basis. Within this collection there are two further sections, one for reference materials such as dictionaries,

encyclopedias, almanacs, yearbooks, bibliographies, handbooks and another for FAO publications.

2.9.1.5.2.3 Periodicals

This collection contains journals and other serials. The library subscribes to an average of 100 periodical titles. The section is also responsible for keeping all library electronic materials mainly CD-ROMs owned by the library. The library has more than ninety CD-ROM databases. Staff from other library sections come to this section to assist students with information searches on the Internet as well as on CD-ROMs. The section operates on an open access basis; however, all electronic materials including The Essential Electronic Agricultural Library (TEEAL), a collection of CD-ROMs of full text agricultural articles, are only used within the library. Staff in this section also deal with document delivery services.

2.9.2 The University of Dar-Es-Salaam (UDSM)

2.9.2.1 Historical background

The University of Dar-Es-Salaam is the oldest institution of higher learning in Tanzania. UDSM was first founded in 1961 as a college of the University of London. In 1963, it became a constituent college of the University of East Africa. Following a decision taken on March 25th, 1970, by the East African Authority, to split the then University of East Africa into three independent universities for Kenya, Uganda and Tanzania, UDSM became an independent national university for Tanzania (Mkude, Cooksey and Levey 2003:1). On 1st July 1970 by an Act of Parliament No. 12 of the same year UDSM was established.

Between the late 1960 and mid-1970s, UDSM acquired a reputation for scholarship that espoused causes and issues related to liberation, social justice and economic development (Mkude, Cooksey and Levey 2003:3). According to Shivji (1991) as quoted by Mkude, Cooksey and Levey (2003:3) in the period between 1967-75 the university developed into one of the best known universities in Africa, if not the world.

2.9.2.2 Location

The University is situated on the northwest of the city of Dar-Es-Salaam on Observation Hill popularly known as "Mlimani", 13 km. from the city centre. Before moving to its current location in 1964 the University was housed in the building of the headquarters of the then ruling Party, the Tanganyika African National Union (TANU) (Mkude, Cooksey and Levey 2003:1).

2.9.2.3 University Campuses

The University constitutes three campuses; the Main campus at the Hill, UCLAS Campus and MUCHS. UCLAS and MUCHS form the two constituent colleges of the University.

2.9.2.3.1   The Mlimani Campus

The Mlimani campus has seven faculties and ten institutes/centers. The faculties are: Arts and Social Sciences (FASS), Commerce and Management (FCM), Education (FE), Law (FL), Science (FS) Aquatic Sciences and Technology (FAST) and Engineering (FOE). It has been proposed that the Faculty of Engineering be transformed into the College of Engineering and Technology (CET). These faculties and one institute (Institute of Mass Communication and Journalism) offer a total of 30 undergraduate degree programmes, 31 masters' degree programmes and 12 PhD programmes.

The institutes and centers are Economic and Research Bureau (ERB), Institute of Resource Assessment (IRA), University Consultancy Bureau (UCB), Institute of Kiswahili Research (IKR), Institute of Development Studies (IDS), Bureau for Industrial Corporation (BICO), Institute of Mass Communication and Journalism (IJMC), Bureau of Educational Research and Evaluation (BERE), Institute of Marine Sciences (IMS) (located in Zanzibar) and the University Computing Center (UCC). The Main Campus has a total of 545 academic members of staff and 9512 students (MSTHE 2003). According to Mkude, Cooksey and Levey (2003:38) an academic audit done in 1998/99 indicated that 68% of University of Dar-Es-Salaam's academic staff held PhDs.

2.9.2.3.2   Muhimbili University College of Health Sciences (MUCHS)

MUCHS campus is located within the premises of the Muhimbili National Hospital. The MUCHS campus is located about two km from the city center. The College has four Faculties; namely Medicine, Pharmacy, Dentistry and Nursing. It also has five institutes that are Traditional Medicine; Allied Health Sciences; Public Health; Primary Health Care and Continuing Health Education and Development Studies. MUCHS offers degrees in Medicine, Pharmacy, Dentistry and Nursing at undergraduate, masters and doctoral levels. MUCHS has a total number of 211 academic staff and 1085 students (MSTHE 2003).

2.9.2.3.3   University College of Lands and Architectural Studies (UCLAS)

UCLAS became a constituent college of the University of Dar-Es- Salaam (UDSM) on July 1, 1996. It was originally founded in 1956 as a Survey Training School, located at Mgulani on the outskirts of the city of Dar-Es-Salaam. The school was moved to the Observation Hill (its present location) in 1958. In 1972, it became Ardhi Institute and began offering tertiary level education in the areas of Land Surveying, Urban and Rural Planning and Land and Management and Evaluation. Later on areas of Architecture, Building Economics and Environmental Engineering were added (UCLAS 2003). UCLAS has two faculties and one institute. These are the Faculty of Architecture, and Planning and the Faculty of Lands and Environmental Engineering. There is only one institute; the Institute of Human Settlement Studies (IHSS) founded in 1979. UCLAS offers undergraduate degree programmes in Architecture, Land and Environmental Engineering, Building Economics, Land Management and Valuation, Environmental Engineering, Urban and Regional Planning and Land Survey. The College has a total number of 88 academic staff members and 784 students (MSTHE 2003).

2.9.2.4 Library services

Each campus of UDSM has its own library. The University of Dar-Es-Salaam (Main Campus) library came into existence when the University College of Dar-Es-Salaam was established in 1961. When it started the library catered for 14 Law students and their lecturers. The Faculty of Law was the first of the University faculties to be established.

The number of library clientele has increased tremendously since the 1970s when there was a total of 2000 library users to 5500 in the 1980s and 8,000 in the 1990s as a result of the addition of new subject areas for the new faculties (UDSM 2004). Library services are enhanced by the good facilities that are available. These facilities include an ICT training room, student computer laboratory and a researcher's study area. The library also has 15 OPACs and about 40 are used to provide electronic information services such as CD-ROMs and the Internet. Photocopier services and television are also available.

2.9.2.4.1 The ICT unit

The ICT unit in the library provides technical and managerial support in order to enable the University to achieve excellence in teaching, learning and research. The services offered include:

- Supervision of the automation of the various service points in the library
- Overall quality control of the Library Information System (LIBIS)
- Coordination of the development of digital services in the library
- Coordination of the Information Literacy Skills Training and ICT competencies of library users and library staff.

2.9.2.4.2 Library collections

The library has six collections and an ICT Unit that provide library and information services for the university community. The collection consists of about 400,000 titles and 2800 journal titles of which 250 are current journals including manuscripts, micro-materials, maps and CD-ROMs. The collections are independent service units that provide specialized services to users, research and courses in various areas. Materials in all collections are arranged according to Library of Congress Classification. The following sections give a description of each collection.

2.9.2.4.2.1 Arts and Social Science collection

The Arts and Social Sciences collection is a collection of materials on three major disciplines: Humanities and Social Sciences, Education, and Commerce and Business Management and is the largest in the Library. It consists of monographs, reports and

serials in these three disciplines. The collection is divided into two sections: an open access section consisting of monographs which can be openly accessed and borrowed and a closed access section which houses serials and a small sub-collection of core materials which are in great demand by the undergraduate students in these three disciplines. This sub-collection is known as the Special Reserve Collection (UDSM 2004).

2.9.2.4.2.2   Reference collection and document delivery section

The reference and document delivery section provides reference services in both print and electronic format. It therefore maintains a print collection including dictionaries, encyclopedias, almanacs, yearbooks, bibliographies, handbooks and manuals. It also has a collection of bibliographic databases in the form of CD-ROMs and facilitates access to numerous online bibliographic databases in the form of an Internet subject gateway and other electronic publications. The section also develops and maintains a number of local content bibliographic databases. These are the journal article collection, biodiversity and environment databases (UDSM 2004).

Collections in the reference section include: reference materials, biodiversity and environment collections, a reprint collection and a library and information science collection, as well as a collection of CD-ROMs in different subject areas. This section has about 10 computer terminals available for Internet access, four of which are also used for CD-ROM searching. This section of the library also houses a satellite decoder for the Xinhua News Agency (UDSM 2004).

2.9.2.4.2.3   The East Africana collection

This is a research collection containing items including manuscripts on East Africa generally, Kenya, Tanzania and Uganda, with emphasis on Tanzania. The items consist of books, pamphlets, periodicals, newspapers, manuscripts, theses and reprints. Many of these include publications of the East African Universities and official documents. Naturally the greater part of the collection consists of the items on Tanzania including those received on Legal Deposit. There is a fair coverage of the other East African countries particularly in statistical and periodical materials, published prior to the mid-

1980s. Of the manuscripts, Cory, Kiswahili and Arabic are more significant historically. A total of 1180 titles of manuscripts have been microfilmed. The collection also holds some materials on Liberation Movements in Africa. The East Africana Collection is used mostly for reference purposes. Its use is restricted to academic staff, postgraduates, final year undergraduates and researchers with research clearance. The East African collection also consists of the following materials:

- *Government publications*

  These are official publications that originate from government offices such as parliament office, ministries, and government departments.

- *United Nations documents*

  United Nations (UN) documents consist of publications issued by the main UN bodies such as the General Assembly, Security Council, Regional Commissions, as well as those issued by various UN agencies, including UNESCO, UNCTAD, WHO, UNEP, FAO, UNIDO, ILO, and so on.

- *Maps*

  Most maps in this collection are East African maps from various Government survey Departments.

- *Theses*

  The University Library is a depository of all unpublished theses from the University of Dar Es Salaam and from other universities written by Tanzanians. The thesis collection also contains theses from former sister colleges of the University of East Africa. Currently, a total of 2,158 thesis titles have been microfilmed, jacketed and are on microfiche. Two thousands (2,000) thesis titles have been abstracted and compiled on the Database of African Theses and Dissertations (DATAD). The DATAD database contains citations and abstracts written by the authors for theses and dissertations completed in African universities. The launching database includes works from all subject areas in the following ten universities:

  - Addis Ababa University-Ethiopia
  - Ain Shams University Egypt
  - CODESRIA-Senegal

- o Eduardo Mondlane University-Mozambique
- o Kenyatta University-Kenya
- o Makerere University-Uganda
- o Universite Cheikh Anta Diop-Senagal
- o University of Dar-Es-Salaam-Tanzania
- o University of Zimbabwe
- o Yaounde I University-Cameroon (AAU 2003)

DATAD project is funded by Ford and Rockefeller Foundations to the AAU.

2.9.2.4.2.4   Law collection

The law collection is divided into two sections: open and closed access. The open access section consists of monographs that can be accessed and borrowed while the closed access, that is the Special Reserve Collection houses materials that are on great demand by both undergraduate and postgraduate students.

2.9.2.4.2.5   The Science and Engineering collection

The Science and Engineering collection is a collection of materials on the following disciplines: Agriculture, Chemical Processing, Chemistry, Computer Science, Engineering , Forestry, Geology, Marine Sciences, Library Science, Mathematics, Medicine, Metallurgy, Nursing, Physics, Science (General) and Zoology. It consists of monographs, reports and serials in these disciplines. Physically, the collection is divided into two sections: an open access section consisting of monographs and serials, and a closed access section that houses the Special Reserve collection. The serials are open access but again must be read only in the closed section.

Given the kind of the facilities available and the staff establishment that consists of 22 senior academic staff of whom five are professors, five senior librarians with PhDs, 52 technical staff and 12 supportive administrative staff, the UDSM stands out as the biggest and the most resourced library in Tanzania.

2.9.3   Tumaini University

2.9.3.1 Historical background

Tumaini University was founded by the Evangelical Lutheran Church of Tanzania (ELCT) in 1996. The establishment of the University followed the decision of the government of Tanzania to liberalize the education sector and the subsequent enactment of the Education (Amendment) Act No. 10 of 1995 (ELCT 2004). The mission of the university is to engage its faculties and students in studies of higher learning committed to the pursuit of truth through scientific research and inquiries. Its main objective is to promote higher education in its broadest sense delving into fact-finding under the guidance of and in obedience to the Word of God (ELCT 2004).

The university administrative headquarters are located in the premises of the Kilimanjaro Christian Medical College, about eight kilometers north of Moshi town, Kilimanjaro region. Tumaini University at present consists of four constituent colleges namely Kilimanjaro Christian Medical College (KCMC), Makumira University College (MUCO), Iringa University College (IUCO) and Waldorf University College (WUCO). KCMC is located in Moshi town, Kilimanjaro Region, eight kilometers from the town centre and was established in 1971 as a referral and teaching hospital. The College has 16 schools of allied health sciences. Waldorf University College (WUCO) is located in Dar-Es-Salaam city. MUCO is one of the largest theological seminaries in Africa, located in the Arusha region in the north of Tanzania. It was established in 1947 when the Lutheran mission and churches began theological training for the ministry in Tanzania. A campus was opened for theological training in 1958 (ELCT 2004).

2.9.3.2 Iringa University College (IUCO)

2.9.3.2.1   Historical background

IUCO is the youngest of the three constituent colleges of Tumaini University. IUCO is the successor of the former Lutheran College at Iringa that was opened in 1993. IUCO began offering studies in Business Administration in 1995, Journalism in 1997 and Law in 1998. In 1998 the IUCO was accredited by the Accreditation Council of the Tanzanian

Ministry of Science, Technology and Higher Education and in the same year the College began to award bachelors' degrees (Tumaini University 2004).

The mission of UICO in providing education is:

- To provide facilities and support appropriate to a university of the highest order
- To promote research, its organization and application to the learning environment
- To support faculty service to the community, region and nation through the church, the government, industry, public and private organizations

2.9.3.2.2   Location

IUCO is located about four kilometers on the north edge of Iringa town in the southern highlands region of Tanzania.

2.9.3.2.3   Faculties and academic programmes

IUCO has four faculties namely, Arts and Social Sciences offering bachelors' degrees in Journalism and Education; Business and Economics offering a bachelor's degree in Business Administration; Law offering a bachelor's degree in Law and Faculty of Theology offering a bachelor's degree and a Diploma in Theology.

2.9.3.2.4   Library services

UICO has a library that was opened in 1999. The library can accommodate 100,000 book volumes, it currently houses approximately 70,000 volumes of books and 150 journals. The books are accommodated on one floor and arranged by Dewey Decimal Classification. The library has no OPACs, instead books in the library are accessed using the card catalogue.

2.9.3.2.5   ICT facilities

UICO is in the process of building its capability for ICT facilities. Its library has a small computer laboratory used by students for the Internet access. There are other three small computer laboratories within the campus that are also used by students for independent study (Tumaini University 2004).

2.9.4. St. Augustine University of Tanzania (SAUT)

2.9.4.1 Historical background

St. Augustine University of Tanzania was established in 1998. Its history goes back to 1960 when Bishop Blomjous of Mwanza encouraged the White Fathers[4] to establish an educational centre at Nyegezi-Mwanza specializing in journalism, accountancy, and community development. The education centre to be established was intended to educate personnel to undertake positions of leadership in the countries of East and Central Africa that were to achieve their independence during the coming years. Nyegezi Social Training Centre was thus established in 1960 and remained under the Catholic Church ownership until it was converted into a university. SAUT is governed by the University Council under the Catholic Bishops of Tanzania (Tanzania Episcopal Conference or TEC) (SAUT 2004).

2.9.4.2 Location

The University is situated in Nyegezi area, 10.5 km South of Mwanza municipality and about four kilometers off the main Mwanza-Shinyanga road, on the shores of Lake Victoria (SAUT 2004).

2.9.4.3 The University campuses

SAUT is divided into two campuses, the Main campus at Nyegezi which houses the administrative building and the Faculty of Business Administration and Malimbe campus located one kilometre from the main campus. Malimbe campus that accommodates the Faculty of Humanities and Mass Communication originally belonged to the church but it was given to the government by the church in the late 1960s to support the Ujamaa effort. The premises were then converted into an agricultural college. However, the land and the premises were reclaimed by the church in 1999 during the process of creating SAUT (Bandiho 2003:7).

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[4] White Fathers also known as the Missionaries of Africa, are one of the three religious congregations that arrived in Eastern and Central Africa in the early 19th Century. Others were Holy Ghost Fathers and Benedictine Monks. The White Fathers led by Fr. Livinhac arrived in 1878 and settled along Lake Victoria and later evangelised all the West of Tanzania together with neighbouring countries of Rwanda, Burundi, Uganda and East of Democratic Republic of Congo.

In addition to the two campuses at Nyegezi, SAUT has three other constituent colleges namely Bugando College of Health Sciences (BUCHS), Ruaha University College (RUCO) and Mwenge University College (MUCE). BUCHS, offering a Bachelor's degree in Medicine was founded in 2003 and is located at Bugando Medical Centre (BMC) also in Mwanza. Bugando is a hospital belonging to the Catholic Church of Tanzania. MUCE, located in Moshi offers a Bachelor of Science in Education while RUCO located in Iringa, offers three degree programmes: Bachelor of Law, Bachelor of Arts with Education and Bachelor of Computer Science.

2.9.4.4 Faculties and programmes

SAUT (Main Campus) has two faculties namely Faculty of Business Administration offering a Bachelor's Degree in Business Administration, a Bachelor's Degree in Economics, Advanced Diplomas in Accountancy, an Advanced Diploma in Procurement and Logistic Management, and Certificate courses in Accountancy, Health Administration, Logistic and Supply Management, Grain Management and Food Security. The Faculty of Humanities and Communication offer Masters' and Bachelors' Degrees in Mass Communication, Bachelor's Degree in Education and Sociology. The faculty also offers an Advanced Diploma in Journalism and a Certificate in Journalism and Mass Media.

2.9.4.5 The library services

The SAUT (Nyegezi campus) library system located on the Nyegezi and Malimbe sites supports the academic activities of the institution, namely, teaching, learning and research. In terms of space and resources, the two campus libraries are relatively small when compared to the number of the students.

2.9.4.5.1   ICT facilities

The library does not have its own ICT unit, however, there is an ICT unit within the university Computer Centre that deals with all ICT technical aspects within the university. Each campus has a small computer laboratory with about 10 computers used by both students and staff. These computers are relatively few in number compared to the

number of users who need them. The Internet, according to Bandiho (2003) was installed in 2002. However, slow Internet speed connection, lack of updated virus protection software and the lack of proper supervision of the laboratories make it difficult to fully utilize the facilities. Bandiho thus concludes that: "Broad and efficient use of technology for teaching and learning at SAUT is still far from reality" (Bandiho 2003:9).

2.9.4.5.2   Library collection

The library has over 15,000 volumes that cover the subject areas taught at the university. The library also subscribes to 11 core journals. Books are arranged on wooden shelves according to Dewey Decimal Classification System. Books can be searched for using a card catalogue. In general the two libraries are under resourced. This is supported by Bandiho (2003:8) who points out that:

> *Printed resources are scarce. Nearly all books shared by the two libraries have been donated by the college and universities abroad and as a result the collection is largely random and outdated.*

It is worth noting here that through the Programme for the Enhancement of Research Information (PERI), staff and students in all Tanzanian universities enjoy free access to a range of online journal and databases in various academic disciplines. This includes access to full text journal articles, abstracting and indexing services. Some of these databases include the following:

- Silver platter
- Ebsco host
- Springer Vergar
- Blackwell Publishing
- Oxford University Press
- Gale
- Emerald
- Ingenta
- Royal Society Journals

2.10   Summary

This chapter has introduced Tanzania as a country. Its location, geographical features, climate and population have been discussed. The chapter has also discussed the economic situation, the education system and also introduced the four universities involved in the study. It has been revealed in this chapter that since the 1980s Tanzania has experienced some economic problems that consequently affected the development of various sectors, including education. These economic problems forced Tanzania to adopt a number of economic adjustment programmes such as NESP, SAP, ERP, ESAP and ESAP. Most of these programmes were influenced by international organizations mainly the IMF and the WB. The chapter has however shown that during the past ten years Tanzania has been involved in various local, regional and international economic initiatives that have enabled the country to improve her economy. Both the GNP and GDP have been raised, the inflation rate has lowered and as a result some social services have been improved at a considerable rate.

Politically, Tanzania is a stable and peaceful country despite having more than 120 ethnic groups. In terms of education the chapter indicates that the education system can be divided into three categories namely, primary education, secondary education and higher education. Tanzania seems to be in a state of transformation with the education system at various educational levels. It has been noted that in 1967, six years after gaining her independence from the British, Tanzania adopted the ESR policy, a policy that influenced the education policy up to the mid 1980s. While the policy has not been absolutely abandoned, in practice it is not functional. Several measures and initiatives are being taken to reform the education sector, some of them include the Education Sector Development Programme that seeks to increase enrolments to achieve universal primary education (UPE) by 2015 (Mkude, Cooksey. and Levey 2003:104)

Another significant initiative taken in recent years is the liberalization of the education sector that has allowed the private sector to own and establish educational institutions including schools and universities. Parliamentary Act No. 10 of 1995 that allows the establishment of private universities has enabled Tanzania to increase her number of universities from three in 1995 to the current ten, of which five are private universities.

This has also enabled an increase in the number of university students. However, in this chapter it has been noted that compared to other African countries Tanzania is still experiencing a relatively low student enrolment both in schools and in higher learning institutions.

The education sector in Tanzania can therefore be defined as one in transition. A number of policies are being implemented in order to effect changes that would lead to an improved education system. Issues like the small number of student enrolment, lack of educational tools and equipment, poor school buildings and a lack of equity in educational opportunities for females and males are being addressed in these policies.

Chapter Three

Review of the related literature

3.1   Introduction

In this chapter the literature review provides an overview of the important themes and issues related to IL with particular emphasis on its development, importance and practice in higher educational institutions worldwide. The review begins by looking at the background and the concept of IL whereby the definitions and other important aspects entailed are discussed. The literature proceeds to discuss other issues related to the effective practices of IL in higher educational institutions. The issues discussed include the importance of integrating IL within the curriculum and the problems inherent in this, such as fostering collaboration among librarians and the teaching staff, securing resources, and carrying out regular evaluation. Modes of delivery for IL programmes and IL initiatives and developments in various countries and in higher learning institutions are also highlighted. Reviews of studies on IL, particularly those undertaken in developing countries, are discussed. The chapter sums up by highlighting the aspects that can be incorporated into the IL curriculum as proposed by IL scholars from developing countries.

3.2   The concept of information literacy

Information literacy is an abstract concept (Behrens 1994:309). The term and concept of information literacy has its roots in the emergence of the information society, characterised by rapid growth in available information and accompanying changes in the technology used to generate, disseminate, access and manage that information (Bundy 2001).

According to Behrens (1994), Carbo (1997), Maughan (2001), Bundy (2001), Neely (2002) and Eisenberg, Lowe and Spitzer (2004:3) the term information literacy is attributed to Zurkowski, President of the Information Industry Association who used the term "information literates" in 1974 to identify people "trained in the application of

information resources to their work". Zurkowski considered these people as information literate because they have learned techniques and skills for utilising the wide range of information tools as well as primary sources in moulding information solutions to their problems (Eisenberg, Lowe and Spitzer 2004:3).

Bundy (2001) points out that the emergence of the concept of IL was brought about by barriers to information access and the determination of librarians to promote the cause of library or information based education. He contends further that the genesis of the concept came from the need to describe "something very real". The referred "something" according to Bundy (2001) is an information literate individual who is an ideal information consumer in a rapidly and continually changing world of information.

In contemporary society information is increasingly changing in terms of its volume, and its technical aspects in relation to its storage, retrieval and in the way it is communicated. IL is thus considered to be an important tool needed by all information users in order to be empowered with skills that would enable them to become competitive in a global information age and for life-long learning. It is from this point of view that the American Library Association describes information literate people as:

> *Those who have learned how to learn. They know how to learn because they know how knowledge is organised, how to find information and how to use information in such a way that others can learn from them. They are people prepared for life-long learning, because they can find information needed for any task or decision.*
> (America Library Association 1989)

3.3 Definitions of information literacy

Various groups and individuals have defined information literacy differently since Zurkowiski coined the term as pointed out above. Behrens (1994) gives a detailed sequence of information literacy definitions from the 1970s to those of the 1980s and she indicates that a series of these definitions were developed in response to the rapidly changing and increasing amount of available information that led to its complex handling (Behrens 1994:311). Depending on individuals, IL definitions have focused on different

perspectives such as outcome skills, behaviours and attitudes. Some of those definitions are discussed in the paragraphs below.

In 1989 using requisite skills required for an information literate person the American Library Association defined IL as follows:

> *To be information literate a person must be able to recognise when information is needed and have the ability to locate, evaluate and use effectively the needed information* (American Library Association 1989).

This definition has since formed the basis of other definitions given by individuals, organisations and education institutions. Today the debate and different opinions on the meaning and definition of IL continues as no concise definition has been agreed upon. This is clearly expressed by Todd (1999:27) as quoted by McGuinness (2003:245) who points out that:

> *The phenomenon has proved difficult to define, while the (ALA) (American Library Association) statement (1989) is the most referred to definition, the meaning of the term continues to be disputed and remains a vexed question.*

Some of the definitions on IL include those given by Doyle (1992), the US Working Group on Information Competence (WGIC) (1995), Shapiro and Hughes (1996), Bruce (1997a), Carbo (1997), California Academic and Research Libraries Task Force (CARLTF) (1997), State University of New York (SUNY) (1997), INFOLIT (1998), Association of College and Research Libraries (ACRL) (2000) and Webber and Johnson (2003a). Some of the definitions are presented as follows:

The Working Group on Information Competence (1995:4) defines IL as "The ability to find, evaluate, use and communicate information in all its various formats".

Information literacy according to California Academic and Research Libraries Task Force (1997) is:

> *The ability to effectively identify, access, evaluate, and make use of information in its various formats, and choose the*

appropriate medium of communication. It also encompasses knowledge and attitudes related to the ethical and social issues surrounding information and information technology.

According to INFOLIT (1998) information literacy refers to: "The ability of learners to access, use and evaluate information from different sources in order to enhance learning, solve problems and generate new knowledge".

The Association of College and Research Libraries (ACRL) (2000) define information literacy as: "The ability to recognise when information is needed and have the ability to locate, evaluate and use needed information effectively".

Webber and Johnston (2003a:101) define 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.

The definition given by Shapiro and Hughes (1996:33) reads as follows:

A new liberal art that extends from knowing how to use a computer and access information to critical reflection on the nature of information itself, its technical infrastructure and its social, cultural and even philosophical context and impact.

Given the broad spectrum of definitions of IL Sayed (1998:13) argues that it is problematic to achieve a definition of the notion of IL that readily lends itself to practical application. According to him most of the definitions of IL consist of aspects of the following concepts:

- Prior-learning experience
- Contextually-specific teaching and learning
- Affective issues (*ability to recognise when information is needed and being confident and motivated to explore the information world*)
- Access skills
- Use and evaluation
- Higher order cognitive skills
- Student centred learning

The definition adopted for this study is elaborated on in section 3.5.

Many scholars continue to come up with new IL definitions and the debate about IL's appropriate definition continues but new definitions do not deviate from the definition provided by American Library Association in 1989 (Owusu-Ansah 2005). Some authors like Arp and Doodard (2002:130) as cited by Owusu-Ansah (2005) consider this debate as healthy because it helps to express a clear perspective on what libraries are and what IL education is all about. On the other hand Owusu-Ansah (2005) is of the view that lengthy debates on IL definitions are unnecessary because they do not articulate new things instead they remain a distraction in the efforts of many librarians as they strive to determine what needs to done by the library and IL education (Owusu-Ansah 2005).

Owusu-Ansah (2005) concludes that in the current existing degree of definitional clarity and the success of the further attempts to identify the specific parameters of the concept, it is an opportune time to concentrate on intellectual activities to seek sober ways to improve students' IL capabilities. In addition, the role the library can play in the process can be explored as well as determining the legitimacy and extent of its participation in the education of information literate students. In terms of an appropriate definition Owusu-Ansah (2005) suggests the adoption of Tefko Saracevic's (1999:1054) approach to basic concept definitions, which is one of "investigating the manifestations, behaviours and effects of phenomena under question". According to Owusu-Ansah (2005) manifestations of IL have been identified in the enumeration of skills, isolation of behaviours and expectations of processes presented in numerous writing on IL.

3.4   The rise and spread of IL movement

IL is now seen as a movement spreading throughout the world. Bundy (2001) asserts that the spread of IL has come out of a concern by librarians both in school and tertiary settings, on the need to promote the cause of library or information based education and empower individuals with information skills.

In the early years in Library Science, emphasis was given to bibliographic instruction, later to user education and more recently to problem-based learning, which has

information literacy as its core (Hepworth 2000b:23). According to Rader (2002:242) in the past thirty years more than 5,000 publications on library user instruction and information literacy have been published and reviewed. He goes on to point out that publications related to user instruction and information literacy, like the field itself, have shown phenomenal growth over the past three decades. In 1973 twenty-eight publications were reviewed while in 2002 more than 300 publications on information literacy were to be issued.

Rader (2002:242) points out further that, in the 1970s publications on user instruction activities emanated primarily from librarians in the US, Canada, United Kingdom, Australia and New Zealand. However, at present publications indicate major concern with information literacy in other countries like China, Germany, Mexico, Scandinavia, Singapore, South Africa, South America, Spain and others. The majority of the publications (60%) address information literacy in academic libraries. While publications related to information literacy in school media centres contribute to 20%. The increase in the number of publications, reports, conferences and initiatives on IL is a clear testimony of the importance attached to this concept by various universities, scholars as well as governments and international/local organisations.

3.5 Interpretation of information literacy

The definitions of IL according to Eisernberg, Lowe and Spitzer (2004:6) are examples of the ways IL extends into the realm of critical thinking and ethical usage of information. The definitions also recognise that information may be presented in a number of formats from the simple to complex, and may include printed words, illustrations, photographs, charts, graphs, tables, multimedia, sound recordings, computer graphics or animation. As pointed out under section 3.3 there are so many definitions on IL that it is not possible to go through all of them. However, in this study the definition by Shapiro and Hughes (1996) will be elaborated on in depth.

In Shapiro and Hughes's (1996) definition three main points are stressed:

- That information literacy includes embedded practical skills which play a role in the effective use of information technology and information sources both in print and electronic formats.
- That information literacy is a new liberal art that extends beyond technical skills to critical reflection on the nature of information itself, its technical infrastructure and its social, cultural and even philosophical context and impact.
- That the information literacy curriculum should include:

Tool literacy – An ability to understand and use the practical and conceptual tools of information technology, including the software, hardware and multimedia relevant to education and areas of work.

Resource literacy – An ability to understand the form, format, location and access methods of information resources especially the ever-expanding network of information resources.

Social-structural literacy – A knowledge of how information is socially situated and produced. This is how information fits into the life of various social groups, institutions and social networks such as universities, libraries, researcher communities, corporations, government agencies, community groups - that create and organise information and knowledge and the social processes through which it is generated.

Research literacy – An ability to understand and use information technology tools for carrying out research-based tools relevant to the work of today's researcher and scholar. For graduate level this may include discipline-related computer software for qualitative and quantitative analysis.

Publishing literacy – An ability to format and publish research and ideas electronically in textual and multimedia forms (including the World Wide Web, E-mail, CD-ROMs and distribution lists) to introduce them into the electronic public realm and electronic community of scholars.

Emerging technology literacy - An ability to continue to adapt to, understand, evaluate and make use of continually emerging innovations in information technology so as not to be a prisoner of prior tools and resources and to make intelligent decisions about the adoption of new ones.

Critical literacy – An ability to evaluate critically the intellectual, human, and social strength and weakness, potentials and limits, benefits and costs of information technologies.

This definition is all-embracing since it takes into consideration the fact that IL is an array and set of abilities that an individual is required to master in the process of accomplishing specific information purposes.

On the other hand, definitions of IL according to Sayed and de Jager (1997:6) can be situated in two aspects:
(i)   Narrow and specific
(ii)   Global and encompassing
Narrow and specific emphasises the skills necessary to handle new forms of information technology (IT) and conceives of IL as the mastery and understanding of technologies that transmit and offer information. This is mainly based on computer literacy, that is being able to apply new forms of IT. On the other hand global and encompassing definitions emphasise access to sources of information, skills to locate information, and the critical evaluation of information.

Bruce (1995:163) sums up a number of abilities encompassed in global definitions as:
(i)   An ability to implement the process of identifying an information need.
(ii)   An ability to locate, retrieve, evaluate and synthesize the information required.
(iii)   Developing a high level of communication skills in relation to colleagues and information professionals.
(iv)   Developing a sound knowledge of information sources and strategies for using them.
(v)   Developing the ability to manage information retrieved through the appropriate use, of, for example, a word processor and bibliographic software.

(vi)   Developing a familiarity with the hardware of information technology, books, newspapers, video, compact discs, computers and all their accompanying apparatus.

While the diversity of the definitions has created different interpretations for IL as a concept, the underlying focus and centre of attention for information literacy remains clear. IL is intended to and enables information users to acquire a broad understanding of information sources, proper handling, manipulating, and critical evaluation of information in various situations for effective decision making, problem solving and research.

IL's focus has shifted from the previous orientation and instruction in the use of a particular library and its collection, to imparting skills within a set of concepts that encompass principles of library organisation, the nature and organisation of information sources and processes of information seeking, evaluation and communication (IIL: 2004)

In broad terms according to Skrzeczynski (1995:11) and Rader (2003:27), IL is a set or range of skills and abilities that include:

- Receptive skills that include location, reading, looking (observation) and listening
- Reflective skills necessary for internal processing resulting in coordination of isolated bits of information into meaningful relationships
- Expressive skills enabling individuals to organise and to communicate knowledge gained through reflective skills
- Personal and social skills as forms of expressive skills that influence other processes like manipulative, interpersonal and community participation skills.
- Abilities to determine the extent of information needed and to use that information ethically, legally and with understanding of economic and social issues.

Looking at IL broadly reveals that it combines a number of literacies including library literacy, media literacy, computer literacy, Internet literacy, research literacy and critical

thinking skills (Rader 2003:27). Beyond the combination of these types of literacy, the most significant aspect that differentiates IL from all these literacies is that, while these specific literacies focus on learning about things, IL is seen as an umbrella that wraps around other literacies and focuses on people's empowerment for success in today's information-rich society (Adler 1999:25). IL creates awareness among people in terms of information practices that are effective in personal, business and political life. IL also empowers people to learn outside the formal structures of an academic environment (Bruce 2004).

However, some people tend to confuse IL and information technology skills. Corrall (1998:26), Schloman (2001) and Bruce (2002) have made a distinction between the two concepts (information literacy and information technology skills). For Bruce (2002) the distinction is the difference between the intellectual capabilities involved in using information and the capabilities required for using technologies that deliver or contain information. Along the same lines Corrall (1998:27) observes that information technology skills include: basic skills (use of keyboard, mouse, printer, file/disk management), standard software (word processing, spreadsheets databases and so on), network applications (electronic mail, Internet, Web browsers), while information handling skills include information sources, evaluation criteria, navigation methods, manipulation techniques and presentation issues.

Therefore as pointed out by Barclay (2003: vii) computer skills are just one aspect or element of IL that should be considered as a segment of the whole thing. Computer literacy according to Schloman (2001) is the set of competencies represented by the understanding of computer basics and the use of a variety of applications to manipulate data and create documents. However, computer related skills often serve to enable an individual to master information-related activities. In this respect not all people can be both computer literate and information literate. Schloman (2001) and Rockman (2004) contend that computer ownership does not guarantee information literacy. An individual can be adept at using computers, but might not be a knowledgeable information user, even if that information is in electronic form (Schloman 2001). Along the same lines

Rockman (2004:7) argues that a student can use information technology to manipulate data and create documents but might do so without necessarily demonstrating information literacy skill. Rockman (2004:10) further observes that to become information literate, the information technology skills acquired by students should be boosted with the knowledge and skill to locate, evaluate, synthesize and integrate ideas and give proper credit to the creator of the information they encounter. It is therefore incorrect to equate computers with information and confuse computer literacy with information literacy. While information technology skills orientate an individual to use computers, software applications, databases and other technologies, information literacy is an intellectual framework for understanding, finding, evaluating and using information activities (NRC 1999).

3.6   Importance of information literacy

Information has acquired a central role in delineating the world's many aspects of social life (economy, culture and politics) (Stilwell, Leach and Burton 2001:v). This global nature of information, creates a wide dimension in terms of the importance of IL. From this perspective information literacy is no longer considered or seen as an issue for a single community or a particular sector, most often that of tertiary education, IL has attained a keen importance extending outside academic boundaries to embrace the entire society (Bridgeland and Whitehead 2004). Long before being known by its current name, information literacy existed in a different form, however, in this rapidly information technology driven society a number of factors have increased and heightened its importance. Some of those factors are discussed below:

3.6.1   Information oriented economy

One of the factors that have increased the importance of IL is the shift in development that has moved from labour intensive economies to primarily information intensive economies. The new technologies have altered almost every aspect of the society and the way we live in general. People need to comprehend these changes in order to fit, and work better in this contemporary world. This has lead particularly in the developing

world to increased attention on improving intellectual processes in work-places that encompass life-long learning, communication skills, knowledge management, evidence–based practices and quality assessment for professionals (Hepworth 2000a:23). Given the diverse nature of learning contexts and the range of skills that are required to enable people to succeed in work places and learning endeavours, IL and life-long learning have become two important intertwined aspects (Candy 2002). The inter-relationship of these two aspects emanates from new technologies and globalisation. From this contention Candy (2002) points out that one of the implications of the new technology is the acquisition of life-long learning skills in order to cope with the changes that are taking place. To express the nature and the need for life-long learning Candy (2002) says:

> *The number of 'gadgets' that are encountered in day-to-day life is beyond counting - everything from Video Cassette Recorders and Automatic Teller Machines, to mobile phones, microwave ovens and programmable washing machines. Whether in the home, the community, the office, the library or public transport, people have to cope with new and often intimidating technologies. Thus simply to go about one's everyday life, there is a constant barrage of new devices, new applications and new terminologies to be mastered.*

On globalisation, Candy (2002) points out that its manifestation includes changes to the geo-political situation, mass migration and the impact of different cultures and religions, opportunities for travelling abroad, new language learning and access to, as well as the availability of, new products and services all of which require a more international outlook and new learning. He points out further that the change of work patterns also caused by globalisation, technology or changes in organisational structure provide significant pressure for new learning. The changes that are taking place require people in their workplaces to update their knowledge and skills in order to learn about new issues and acquire new skills. An array of information skills, are required by any one working in a knowledge-based environment. Individuals in workplaces need to use technology, think critically, solve problems, reason and decide intelligently, learn how to learn, evaluate, interpret, organise, manage and communicate information using a variety of technologies (Rockman 2004:13).

3.6.2 Technology and information explosion

Another reason for the importance of IL is the rapid technological changes in processing, storage and retrieval of information that in turn has led to a proliferation of information and an explosion of information resources. Progress in information technology and the emergence of the Internet, an increase in the number and the availability of information databases and other electronic information sources has totally changed the information use scenario (McCartin and Feid 2001). These factors have contributed to an escalation of the complexity of information handling and use among information users in academic studies, research, recreation and many other areas. Tiefel (1995) acknowledges that most library users are unaware of the quality and variety of information available. She points out that "they are often satisfied with materials that an experienced librarian would find wholly inadequate and or inappropriate" (Tiefel 1995:325)

The expanding quantity of information, the uncertainty of information quality and the need for information users to effectively and efficiently utilise information resources available in libraries, information centres and other places, creates challenges to all information professionals and the society in general. Therefore in order to authenticate, validate and make effective use of information accessed from various sources, adequate skills are required (Bundy 2001).

3.6.3 Information literacy and the shift in teaching approaches

Another factor that makes IL important particularly in academic institutions relates to changes in education philosophy that call for various education institutions from school to university level to shift from teacher-centred teaching to a student learning centred (Sparrow, Sparrow and Swan 2000). This philosophy is intended to encourage critical thinking and independent learning. The underpinning factor in student centred learning, as developed by an American psychologist Carl Rogers, is the belief that students are not empty vessels whose learning is viewed as an additive process. Instead this philosophy considers that students possess perceptual frameworks that allow them to learn in different ways and in a dynamic process (Motschning and Holzinger 2002). The student centred approach demands a shift of emphasis in responsibility from the teacher as a person who is responsible for prescribing knowledge to a facilitator of learning whereby

students are empowered with the responsibility for their learning. According to Motschning and Holzinger (2002) the student centred learning approach potentially provides students with a deeper learning process, personal growth, social skills, a higher degree of flexibility in learning and the maturity for independent, lifelong learning. There is also an overlap between resource based learning and IL. Vuren and Henning (2001:81) note that resource based learning and IL are associated with acquiring skills in preparation for lifelong learning. Vuren and Henning (2001:81) contend further that student centred learning is also related to the concept of resource based learning that emphasises teaching and learning through the use of various resources and that resource based learning cannot be successful if students have not acquired effective information handling skills.

IL is therefore an important tool for meeting the underlying objectives of both student centred learning and resource based teaching approaches. In education, IL is important for facilitating and enhancing the teaching and learning process. According to Bruce (2002) the significance of IL lies in its potential to encourage deep, rather than surface learning, transforming dependent learners into independent, self directed life-long learners.

Information literacy in academic institutions, besides supporting, promoting and enhancing teaching, and research, is also intended to create a learning culture that can produce graduates with a capacity and desire for life-long learning in a rapidly changing, complex and information abundant environment (Bundy 1998). Changes in the formats of educational resources, such as digitisation of scholarly publications and the growth in online delivery and other electronic learning resources, requires various skills, fluency with information technology and learning skills that are beyond rote learning (Bundy 2001). Bundy (1998) also underscores the point that through information literacy the following qualities can be inculcated:

- Ability to operate effectively at sufficient information depth to begin a professional practice.
- Preparedness for lifelong learning in pursuit of personal development and excellence in professional practice.

- Effectiveness in problem solving through application of logical, critical and creative thinking.
- Working autonomously and collaboratively as a professional.

Someone who is information literate can achieve the qualities mentioned above. This is a person who is able to locate, evaluate, manage and use information in a range of contexts. At university level therefore, becoming information literate enables a student to become capable in learning as well as becoming a life-long learner possessing transferable research and learning skills. To stress the importance of IL for students Breivik (2000) points out that:

> *Within today's information society, the most important learning outcome for all students is their being able to function as independent life-long learners. The essential enabler to reaching that goal is information literacy*

Among the many advantages that can be achieved by students through IL competence, according to a number of studies including those of Goodin (1991); Todd (1995); De Jager (1997) and Bitso (2000) is to excel in their academic performance. From his study of two groups of high school students, one with instruction in information skills and one without, Goodin (1991) concluded that students who possessed information skills scored higher in the tests than their counterparts and that they were likely to be more successful in the realm of higher education. A study conducted by Bitso (2000) at the University of Cape Town confirmed this conclusion regarding academic performance among students. Todd's (1995) study in Australian schools also endorsed this finding, that students with IL capacity scored better on assessment criteria and in examinations than those without. A study by De Jager (1997) carried out at the University of Western Cape also established that there was a significant relationship between academic performance and the extent to which students used library and information resources. While this is not in itself an indication of information literacy per se, the study revealed that students with the best academic performance also used library materials more than their lower achieving counterparts.

The importance of IL for students is also echoed by the Department of Science Training and Education in Australia as quoted by Nelson (2002) who emphasises the need for getting graduates who are skilled and knowledgeable by noting as follows:

Higher education institutions should produce graduates with skills, knowledge and learning outcomes that promote individual development and that the nations require for continued economic, social and cultural development. This new century is generating a need for "emerging skills" and knowledge that have not previously been a focus for higher education. These include initiative and enterprise skills; information literacy and management skills; the capacity for life-long learning; the ability to be adaptable and 'learn-to- learn' in jobs and roles yet to be envisaged and skills to work effectively in multidisciplinary contexts.

The South African Qualifications Authority (SAQA) also identifies IL as an important outcome that needs to be incorporated into all qualifications (Leach 1999:58). It can therefore be concluded that information literacy is required for everybody because of the global changes that have and continue to take place in all sectors of daily activities. This includes the proliferation of information in studies, in the workplace, and in people's daily lives. The quantity, quality, and diversity of sources, access methods, delivery methods, and formats create a potentially disorienting environment for both regular and new information users. The impact of globalisation also necessitates the need for acquiring new skills.

As acknowledged by Feicheng (2002) the information landscape which society experienced in the past has been transformed dramaticaly. Economic transformations and quality of life have become more dependent on information and life-long learning skills. Therefore an effective response to this ever- changing information environment is required in order to equip people with techniques to connect personal knowledge bases with collective knowledge and to develop practical skills. This response, according to Feicheng (2002), is information literacy.

For students, information literacy is important because it implies confidence, competence and more acceptances in today's information world. Sharpening students' information skills in order to enhance their creativity and critical thinking is a vital challenge for all educators. Information literacy is therefore an important educational and social life tool that needs to be promoted. Meeting this challenge requires cooperation and partnership among library/information professionals, academics and educational administrators across all educational institutions.

While it can be agreed in principle that information literacy remains critical in the academic setting it is also true that information literary is not an exclusively academic or library issue or need but rather part of a general social and economic trend (Buschman and Warner 2005). Information literacy has extended its wings to become important and significant in all aspects of 21st century life specifically where information and technology intersect (Rockman, McBroome, Berg and Grant 2003:31).

3.7 Implementation of information literacy in academic institutions

The implementation of any programme requires the undertaking of strategic planning and the same applies to IL. Various IL scholars and authors have written, debated and proposed a number of strategies that can be applied in order to implement and conduct IL programmes especially in academic settings. Some of these strategies and challenges that are likely to face IL are discussed in this section.

3.7.1 Integration of IL in the curriculum

As already pointed under 3.6 the importance of information literacy in this era of the information society is evident. This has led many educational institutions both in developed and developing countries to introduce a variety of instructional programmes for IL. While information practices may vary across disciplines most of them underpin academic and professional practices in humanities, science, social science, health science and technology based disciplines as well as underpinning informed civil responsibility. In the education sphere the main concern is the need to promote the role of IL in academic achievement (Bruce 2002). As a result of this perception, increasingly efforts have been made to incorporate information literacy into the academic curriculum particularly in the US, Canada, Scandinavia, Australia, New Zealand, Netherlands and in the UK.

Many authors such as Kaufman (1992), Sayed and De Jager (1997), Heseltine (2000), Johnston and Webber (2000), Rader (2001), McCartin and Feid (2001), George et al. (2001), Buchanan, De Anne and Jones (2002), Rockman (2002), Overholtzer and Tombarge (2003) and De Jager and Nassimbeni (2003) advocate that an effective

information literacy programme should be integrated or incorporated within the academic curriculum. A number of reasons for supporting this proposition have been advanced by these authors. Heseltine (2000:74) for example, argues that the teaching of information skills should be firmly embedded in subject context, in the curriculum itself because the need to acquire these skills only becomes meaningful to students in a curriculum context. He further points out that it is through the curriculum that students see the relevance of IL and have their interest in IL engaged. According to Johnston and Webber (2000) information literacy is inculcated in a way that is relevant to the student when the programme is geared to the needs of a specific discipline. McCartin and Feid (2001:7) also recommend that IL be embedded in the curriculum because it is through the curriculum that students see the skills associated with information literacy as a skill set, relevant to all courses and of help to their academic success.

In the same vein George, Mc Causland, Wache and Doskatsch (2001) argue that information literacy skills can only be developed in conjunction with the discourse of the field not apart from it, thus information literacy is a field and discipline that needs to be embedded in the usual teaching and learning arrangements of a course. Confirming this view De Jager and Nassimbeni (2003:109) conclude that:

> *Teaching of information skills should be firmly embedded in subject knowledge because the so called 'generic' courses that are not firmly integrated into the curriculum of specific course might be less appropriate for inculcating information skills of lasting value to students.*

Since certain specific concepts and skills needed by students vary among disciplines it is desirable to teach information literacy as part of courses already in the curriculum so that those skills can be applied to "real" problems. This is mainly because the student learns best when skills are taught in context (Overholtzer and Tombarge 2003:55).

However, the issue of integrating information literacy in the curriculum has a number of problems and challenges facing it. Among the difficulties of teaching IL in an integrated way is relating it to various subjects, partnership and alliances (Kaufman 1992:38).

3.7.2 Challenges to collaboration

Due to its importance, IL is gaining prominence and acceptance not only in higher learning institutions but also at lower levels of education such as schools as well as in the work place. In education institutions the emphasis on the teaching or conducting of IL programmes revolves around collaboration or partnerships between librarians and academic teaching staff. Speaking from the school environment perspective Kuhlthau (2001) emphasises that collaboration with teachers is essential as it involves teaming up for planning, teaching and evaluating student learning across the curriculum. She points out further that collaboration enables greater cohesiveness between the teachers who are experts in content and context and the teacher-librarians, who are the resources and processes experts. However, working in collaboration and partnership also presents challenges and there are barriers that impede IL programme implementation. Some of these barriers are institutionally based, ranging from institutional resources to the relationship between various institutional staff especially librarians and teaching staff.

While it can generally be accepted that IL is a library-based activity, IL is not a library issue but an institutional issue that requires institutional willingness and support. This is clearly echoed by Owusu-Ansah (2005:371-372) when he states

> *Though much of the momentum for IL has been sustained by the perseverance and activities of the library community, it must be admitted that whatever lasting success proponents of IL hope to achieve can only be truly attained if the library profession recognises that the library cannot rightfully claim total ownership of IL.*

Taking into consideration the importance of contextualising IL as an institutional issue Breivik (1998:78) observes that one of the challenges that needs to be addressed by administrators is to facilitate a campus wide mental shift from thinking of IL as a library issue to the understanding that it is a learning issue. According to Hardesty (1995:339) librarians consider teaching staff as key to the success of bibliographic instruction (IL), however, considerable evidence suggests that the nature of the teaching staff is likely to impede IL efforts. A number of reasons that lead to teaching staff resistance, unwillingness to share their classrooms and poor cooperation regarding university-based

IL programmes have been outlined by a number of authors. Some of these reasons include the following:

3.7.2.1 Control over curriculum and subject matter

In most universities teaching and the curriculum are controlled by academic teaching staff, librarians have a very modest opportunity to influence curriculum design. Librarians can advise, recommend and urge but cannot dictate or control the curriculum (Curzon 2004:29). The control of the learning environment held by teaching staff allows them the right and responsibility to decide the course content, assignments, objectives and methods of educational instruction (Young and Harmony 1999:6; Smith 2000). This situation according to Hardesty (1995: 352) militates against inviting others such as librarians to share in the teaching process. Mc Guinness (2003: 244) also shares this view by noting that:

> *Lecturers exercise a great deal of autonomy over content, and for the most part decide what will be included in, and excluded from, their programmes. Thus, the place of IL education in undergraduate curricula depends primarily on their attitudes towards it. Equally, students are disinclined to engage in learning tasks that are not mandated by their lecturers, and not credit bearing.*

However, IL has tended to draw librarians closer within the core university teaching business. With this trend some academics have started experiencing feelings of competition with librarians to secure teaching responsibility. Breivik (1998:82) suggests that some professors fear that, because IL has roots in resource-based learning, it will send students out into the wide universe of information to read some prestigious expert who disagrees with what has been taught in class or to find more current information than that being taught.

The problem academic staff have in relation to integrating IL into the curriculum, is also expressed by McGuinness (2003:248) who notes that the lack of integration of IL programmes in universities is attributable to a reluctance by some academic staff attempting to protect their position of power and control over the design of the

undergraduate curricula. Academicians' resistance is therefore intended to protect their territory because they consider librarians as outsiders in their profession (teaching). However, as Peacock (2001:27) put it,

> *Academicians are facing the challenge of teaching concepts and skills that exist beyond discipline-based content and in which they themselves may demonstrate limited understanding or proficiency. Such a refocus demands that individual academician must seek out complimentary expertise and specialised guidance from support areas such as libraries.*

The asymmetries of power that persist between academics and librarians over controlling the curriculum marginalizes libraries and librarians and puts librarians at a disadvantage in assuming a substantive role in the teaching and learning process. The relative inequality of librarians and academics prevents library professionals from fully integrating IL into the curriculum (Peacock 2001:27-30).

Peacock (2001:29-30) further identifies four key barriers that disadvantage the library and librarians in assuming a greater role in the teaching and learning as:

- Limited understanding of the inherent link between generic attributes and IL and the library's contribution to the development of both
- Narrow appreciation of the role of the library as an active contributor to teaching and learning processes (as that which extends beyond being a passive resource)
- Reluctance to engage the library in teaching and learning partnerships and projects, either by exclusion or oversight
- The high profile technologically-driven initiative which inhibits a library's ability to:
  - equally attract funding that relates to teaching and learning initiatives
  - acquire access to course development pathways
  - participate in collaborative faculty and/or university projects

On the other hand Webber and Johnston (2003a:103) point out that the low status given to librarians in many universities also leads to IL's low standing.

3.7.2.2 Pedagogical discourses

Differences in pedagogical discourse between librarians and teaching staff are also considered to lead to academician's resistance to teaching by librarians. Fullerton and Leckie (1999:19) observe that teaching staff are very concerned with their discipline and the core concepts they feel their students need to learn and internalise. Academic staff believe that the integrity of their discipline should be preserved and maintained. Because teaching staff want to maintain the traditional academic course structure they tend to be against the incorporation into their students' studies of other kinds of materials and skills that are different from those found in their disciplines. They consider such innovations as an intrusion and displacement of time spent on their favourite topics (Owusu-Ansah 2004). In the same vein Snavely and Cooper (1997a:59) point out that some academic staff object to having other skills encroach on the course content they teach. However, Snavely and Cooper (1997a:59) emphasise that IL needs to be seen as a process (as opposed to a set of skills) that is integrated into appropriate classes; it is a process that will augment students' abilities to cover content, not detract from it. These two authors point out further that students' enhanced awareness of library and information resources will enable them to become better in pursuing content on their own.

On the other hand librarians, while they may feel that they have to teach certain core concepts related to IL, are more focused on imparting generic rather than subject specific knowledge skills to their patrons yet the pedagogical discourses they have may prevent their collaboration with teaching staff (Fullerton and Leckie 1999).

3.7.3   Other challenges facing IL programmes

There are other challenges that face IL programmes that are not necessarily related to the teaching staff yet also need to be mentioned.

3.7.3.1 Competition of literacies for resources

Various developments and the emergence of new phenomena in the social and political arena, also create other literacies that in one way or another are considered by education institutions to be important for students. Schloman (2001) observes that over the past

decade there has been a proliferation of "literacies" and she notes them as computer, cultural, design, emotional, financial, geographical, health, information, mathematical, media and scientific literacies. Other literacies include environmental literacy, civic literacy, HIV-AIDS literacy and so many others. Of all these literacies, Schloman (2001) concludes that although they all have their place, for our time it is information literacy that can have the greatest overall impact on our lives. Within academic institutions, proponents of each type of literacy present recommendations for that particular literacy to be institutionalised and supported for funding purposes and for inclusion in the curriculum. According to Smith (2000) when attempts are made by librarians to explain their case for IL, other academic departments view them as competitors instead of regarding them as forward-looking proponents of an innovative curriculum in which IL is incorporated. Webber and Johnston (2003a:103) point out that this is mainly because there is lack of academic recognition of the value of IL. The general scenario in academic institutions creates competition for support and resource allocation from administrators and other stakeholders.

On the other hand administrators for one reason or another may favour certain literacies more than others. Studies by Hughes (1992) and Deekle and de Klerk (1992) on the views of chief academic officers and library directors indicate that those two groups have divergent views and thus indicate that chief academic officers may not be supportive of IL. Also due to budget shrinkages and increased expenses for running institutions along with teaching staff feeling beleaguered by requests to incorporate materials from these competing literacies and programmes into their courses, chief academic officers are likely to require substantive reasons for why they should support IL over other literacies.

In order for IL to be supported Snavely and Cooper (1997a:57) suggest that librarians should not only be outspoken advocates on the support of IL but also be involved in dialogue with faculties across disciplines and develop strong allies among administrators and academic staff.

3.7.3.2 Librarians' resistance

Despite IL's being advocated by librarians, some librarians themselves may become obstacles to the effective implementation of IL. Some may feel that establishing an IL programme in which teaching staff are involved may result in their losing ground as librarians and subsequently with library-related institution programmes (Snavely and Cooper 1997a:59). Such librarians would like to rather have IL taught by library staff. Some libraries are too short staffed to maintain even routine library duties hence it may be difficult to undertake extra work related to the teaching of IL.

3.7.3.3 Resource constraints

Institutional inability to provide resources in terms of human resources, finance and other tools used for teaching and learning may also hinder IL development. IL requires adequate resources such as CD-ROMs, computers, good Internet connectivity and other non-electronic resources such as books and journals (Hepworth 2000b:31). It is through these resources that learners have the opportunity to learn and to acquire skills in accessing, using and evaluating information from a variety of resources.

3.7.3.4 Students as a barrier

Learning can be derived both from the personal motivation to acquire certain skills or knowledge and from external motivation. Librarians and teachers as educators may insist on the importance of IL to their students, however, if students are not prepared to learn, the effort by teacher and librarians may fail. According to Gutierrez and Wang (2001:211) despite the importance placed on IL by librarians, students are indifferent to it unless they have an immediate need for IL. In other words as pointed out by Hepworth (2000b:31), for IL to be accepted students should appreciate that specific learning skills, strategies and attitudes prepare them for a professional work environment as well as helping them to achieve their immediate learning objectives. Gutierrez and Wang (2001:211) therefore urge that librarians take responsibility for convincing students of the importance of IL.

3.8   The teaching debate

In the LIS literature another aspect of IL that has created a debate between librarians and the teaching staff concerns the question as to who are the appropriate people to take on responsibility for teaching IL. The debate centres on whether IL should be taught by librarians or by the teaching staff. Essentially information literacy has been considered a library-based activity. Based on this point of view, in most cases, it has been common practice for librarians to give IL instruction. This is noted by McGuinness (2003:246), referring to the papers written by LIS professionals who contend that library professionals are the best people to provide IL education, owing to their information expertise. For example, Owusu-Ansah (2001:282) states categorically that:

> *Librarians are the best equipped members of the academic body to provide IL...colleges and universities need to make the library as a teaching department and make IL course as the basic requirements of undergraduate education.*

However, authors like McCrank (1991), Foster (1993), Pacey (1995), Boyce (1999) Heseltine (2000) and Asher (2003) are not in favour of librarians being involved in teaching. According to McGuinness (2003:247) some of these authors have come to the conclusion that the motive behind the IL movement is for IL to be used as propaganda for LIS professionals, who are dissatisfied with their professional status. Asher (2003) strongly opposes librarians being involved in classroom teaching. He argues that any attempt to move librarians away from libraries and into teaching classroom settings is done at the expense of students and ultimately weakens rather than strengthens the role librarians can play at a university. While Asher (2003) acknowledges the importance and effectiveness of both the librarians and academics' independent jobs he maintains that the boundaries of knowledge between librarians and academics should be delineated so that each can provide students with the best of their expertise.

On the librarian's side Heseltine (2000:75), among several reasons he advances why librarians cannot take a lead role to play in IL delivery, includes the following:

- Lack of necessary in-depth knowledge of curriculum content and learning tasks for relevant and effective teaching
- Lack of teaching qualifications

- Lack of the necessary academic authority

Proponents of teaching of IL by librarians such as Simons (1984) as quoted by Gentil (1999:31) acknowledges among the librarians strengths in the teaching of IL as wide knowledge of bibliographic tools, an intimate knowledge of the library and being administrators of the collection. Although Gentil does not totally support librarians' taking over the teaching responsibility she supports a balanced partnership between librarians and academic staff and notes that without this cooperation students may find themselves deluged with much relevant and irrelevant information on the subject (Gentil 1999:31).

Other authors like Heseltine (2000) are in favour of teaching staff being responsible for teaching of IL. Heseltine gives two main reasons as to why teaching staff should take the leading role for IL teaching. Firstly, he points out that academic staff genuinely understand the content of the curriculum. Secondly, he argues that librarians cannot make the acquisition of IL skills an essential part of the curriculum unless academic staff are seen to champion it. This opinion is also shared by Smith (2000) who argues that the attitude among LIS professionals that their expertise makes them better instructors of IL, prevents IL from penetrating deeply into higher education and that this may confine IL to remaining within the LIS discipline. Smith therefore suggests instead that teaching staff be empowered by the acquisition of IL teaching skills.

Smith (2000) proposes that librarians should train and assist the teaching staff to teach IL in their courses. He points out further that teaching staff should be exposed to the essential elements that would make them embrace IL. These elements are:
- Recognition of IL as a core component of instruction
- Adequate training in the use of information systems and services
- Adequate techniques and activities that can be used to develop student IL
- Commitment to teaching staff development and collaboration

However, on the other hand it has been pointed out that there are some academic staff who have expressed little interest in the whole issue of IL and some are not even interested in being involved in teaching it (Mc Guinness 2003:246). It is also reported

that some academic staff do not have adequate information skills themselves and have little idea of how to teach them. According to Hepworth (2000a:27) in a study by Oker-Blom (1998) in Finland, only 15 per cent of academic staff had had formal training in information management in comparison to 35 per cent in the US.

Despite this critical debate many authors such as Ianuzzi (1998), Moore (1998), Gentil (1999), Kotter (1999), Roth (1999), Raspa and Ward (2000), Armstrong et al (2000), Webber and Johnston (2002) and Harris (2003) agree that the nature of information is complex thus the teaching of IL requires a multidisciplinary approach that involve librarians and teaching staff.

At the University of Botswana, for example, Yeboah (1999) reports a successful IL skills initiative for science undergraduates that involved librarians and lecturers in its planning and implementation. He contends that the success of this programme depended on the integration of information literacy with other programmes and the planning of them to coincide with heightened student motivation and sustained student attention. Further to this, Yeboah (1999:151) underscores that "partnerships with lecturers had been found very effective in sustaining student's attention". Designing and teaching IL programmes using a multidisciplinary approach between teaching and administrative staff has also been reported to be useful and successful at the University of South Africa (UNISA) (Machet and Behrens: 2000).

According to Kotter (1999) the involvement of teaching staff helps to establish the learning context, inspires students and offers guidance for fulfilling specific information needs according to discipline, advances student learning and research skills and raises the visibility of the library (Kotter 1999:295). It also facilitates monitoring students (ACRL 2000). The involvement of teaching staff also enables information literacy to feature and to be recognised as an important learning activity within the university. According to Armstrong et al. (2000) academics need to be involved because they are both more influential with students and arguably in senior university administrative positions.

The debate seems to be more of a status quo issue rather than looking at the core problem related to IL among information users. While it may be true that LIS professionals or librarians for that matter, do lack teaching status as seen by academic staff, it is also true that LIS professionals are people trained in the information domains such as librarianship, archive management, IT and so fourth. At the same time a good number of LIS professionals have undergone studies in some disciplines that are taught by academic staff although not necessarily at the same level such as Masters and PhD degrees. This means they possess dual qualifications. On the other hand most academic staff, despite being involved with teaching, have not undertaken formal professional teaching qualifications, an observation also shared by Owusu-Ansah (2001:285). Their teaching qualification is based on their qualification and good performance in their specific academic subjects hence their teaching skills have, some how been acquired through experience in teaching over many years.

As already pointed out the best way to make IL programmes successful is to engage both the librarians and the academic staff through mutual collaboration. McGuinness (2003:248) argues that the support for collaboration is based on the fact that the two groups share a common goal that is needed for IL. He further points out that the issues such as active-learning, critical thinking and life-long learning are conterminous with the concept associated with IL. He therefore concludes that this being the case, cooperation is the route to be taken for IL teaching.

However, successful collaboration can only achieved when mutual acceptance between academic staff and librarians is realised. According to McGuinness (2003:249) collaboration between the two groups in teaching terms does not exist in the real life situation to a large degree. Instead librarians are perceived as service providers to academicians principally; they are seen to be concerned with the management of information resources. Further to this, librarians' functions are depicted as reactive, in that they deal with queries and problems as they arise and as requested by the academic staff.

It is important that academic staff and librarians should take each other as equal and peer partners in the whole process of education provision to their students and the society in general. This state of affairs is duly expressed by Snavely and Cooper (1997b:13) in that by implementing IL, librarians will be promoting learning and contributing to the learning process which in turn complements other parts of the learning process taking place in different areas of an academic institution.

Therefore the main issue should not be to debate on who should teach IL, the issue should be to ask the question whether or not students as information users need information literacy knowledge and skills. If the answer is yes as it has been confirmed by the literature the next step should be in finding and putting in place the best way to tackle the IL problem among students.

3.9   Modes of delivery for information literacy programmes

There are different approaches or modes of providing IL programmes. Some of them are discussed below.

3.9.1   Course integrated instruction

Course integrated instruction, according to Allegri (1985) as quoted by Young and Harmony (1999:45) is instruction that meets at least the following:

- Members outside the library are involved in the design, execution and evaluation of programme.
- The instruction of the programme is curriculum based in the sense that it is directly related to students' course work or assignment.
- Students are required to participate.
- Student's work is graded or credit is received for participation.

This is the approach preferred by many authors and IL practitioners for the effective imparting of IL knowledge and skills.

3.9.2 Non-integrated instruction

Unlike course integrated instruction a non-integrated course is not an essential component of any specific course and/or research assignment. Although some members of academic staff may be involved in deciding the content or linking it to particular assignments, this type of a programme according to Young and Harmony (1999:45) lacks two aspects:

- Members of academic staff do not actively collaborate with librarians in designing and providing the content.
- Librarians have no or very little involvement in the design and evaluation of research assignments.

According to Young and Harmony (1999: 46) non-integrated instruction programme can be delivered in two ways:

3.9.2.1 Stand-alone presentation

Stand-alone programmes are scheduled and presented by librarians independent of academic course schedules and assignments. What is taught in these programmes depends on the assessment by librarians of what may be needed by students such as an introduction to the on-line catalogue, databases and specific resources or specialised topics. Attendance by students is also voluntary, as they do not receive assignments, credit or grades.

3.9.2.2 One-time-lecture

This type of programme is mainly a lecture delivered by a librarian after having been invited by a lecturer to come to his/her class to lecturer on specific resources or on an information aspect that may be considered important and needed for accomplishing a particular piece of work or an assignment. Sometimes the invitation may be extended to the librarian just to introduce something related to the library and information in general. This type of programme according to Young and Harmony (1999:46) is considered to be inadequate for delivering IL skills because it provides limited chances to include aspects of evaluation and problem solving that are very important in IL programmes.

3.9.3   Web–based tutorials

Web-based tutorials are instruction offered by using Web interfaces. Through Web interactive multimedia tutorials can be used to give assignments or self-paced IL learning modules. The web is an integrated teaching tool that allows students to use the actual resource itself to learn as well as to conduct their research (Young and Harmony 1999:100). Web tutorials range from the simple to complex and focus on issues such as online-searching, evaluating web sites, citing sources, information ethics and broader information literacy topics (Eisenberg, Lowe and Spitzer 2004:134).

3.9.4 · Workbooks

A workbook is a book that provides assignments and activities that users can write in and practice lessons on skills or concepts. Workbooks can be in paper form or electronic (Young and Harmony1999: 102).

3.9.5   Other useful methods include:

3.9.5.1 Signage

Signage in libraries may be used for different purposes including warning, directions, information, orientation and instructional. Signage is usually paper-based and posted in conspicuous areas and in areas where users may need help such as information about procedures, information for using equipment like computers, databases, printers and so forth (Grassian and Kaplowitz 2001:171).

3.9.5.2 Maps

Maps are very helpful for self-help in locating materials, service points and other important locations in a single building or in multi buildings within larger areas such as a campus (Grassian and Kaplowitz 2001:172).

3.9.5.3 Guided and self-guided tours

Tours can be guided by librarians or be self-guided. Self-guided tours can be provided on paper or electronically by audiotape, CD-Rom or be Web-based. Tours provide orientation to the building and library's services. In most cases librarians combine the

physical tour with a brief introduction to the set up of the library and instruction in the use of various resources that are available (Grassian and Kaplowitz 2001:174-175).

3.9.5.4 Exhibits

Signs that are hand-lettered or computer printed, glossy photos, printed posters, enlarged sample websites and sample research papers constitute an exhibit or display that can become very useful for information users (Grassian and Kaplowitz 2001:176).

3.9.5.5 Slides, tapes and videotapes

Simple slides, tapes and short video instructional programmes with live dialogue and voiceovers are an effective means of providing instruction to information users. A combination of images and voices are effective tools for capturing an audience's interest (Grassian and Kaplowitz 2001:184).

3.10 Information literacy standards

In order to make sure information knowledge and skills are inculcated and to achieve a rational system of standards, various bodies in the United States, the United Kingdom and Australia have set standards and benchmarks against which IL outcomes may be measured and evaluated. In 2000 The Association of College and Research Libraries (ACRL) published a set of five key IL competency standards for the US and the Standing Council of National and University Libraries (since 2001 it is known as Society of College, National and University Libraries) (SCONUL) in the UK published in 1999 a Seven Pillars Model for Information Literacy giving details of seven major skills required by all students. In Australia, the Council of Australian University Libraries (CAUL) also published in 2001 their information literacy standards (De Jager and Nassimbeni 2003:108).

3.10.1 Standards of the Standing Council of National and University Libraries (SCONUL)

The SCONUL model consists of seven headline skills that are considered as standard skills for IL:

1. The ability to recognise a need for information.
2. The ability to distinguish ways in which information 'gap' may be addressed.
3. The ability to construct strategies for locating information.
4. The ability to locate and access information.
5. The ability to compare and evaluate information obtained from different sources.
6. The ability to organize, apply and communicate information to others in ways appropriate to the situation.
7. The ability to synthesise and build upon existing information, contributing to the creation of new knowledge.

These headlines have been adopted in a number of UK institutions in developing their information skills curriculum (Johnson 2003: 45).

3.10.2 Standards of the Association of College and Research Libraries (ACRL)

According to Rader (2003:28) the US was the first among the countries to work on IL standards. The ALA and ACRL have been developing IL definitions and standards for over 20 years. The US Information Literacy Higher Education Standards were issued in 2000, reviewed by ACRL Standards Committee and approved by the Board of Directors of ACRL in the same year. These standards were also endorsed by the American Association for Higher Education and The Council of Independent Colleges in February 2004 (ACRL: 2004). The standards focus on key areas of required behaviour in the information literate student. These five competence standards which also include performance indicators and outcomes (See Appendix 1), are that the information student:

1. Determines the nature and extent of information needed.
2. Accesses needed information effectively and efficiently.
3. Evaluates sources critically and incorporates selected information into his or her knowledge base and value system.

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4. Individually or as a member of a group uses information effectively to accomplish a specific purpose.

5. Understands many of the economic, legal, and social issues surrounding the use of information and accesses and uses information ethically and legally (ACRL: 2004).

These standards according to ACRL (2004), extend the work of the American Association of School Libraries (AASL) Task Force on IL Standards thus providing a framework for assessing information literacy in individuals as well as providing an opportunity for higher education to articulate its IL competencies with those of K-12 hence creating a continuity of IL skills at all levels.

Translations of these standards into other languages have been done, this includes translation in German by Benno Homann, in Swedish and in Finnish by Ola Pilerot (Webber and Johnston 2003a). Rader (2003:28) also acknowledges that these standards have been translated in Spanish, Greek and Chinese.

3.10.3 Standards of the Council of Australian University Libraries (CAUL)

In Australia, CAUL adopted in 2001 seven IL standards for Australia. The Australian standards according to Webber and Johnston (2003a) are essentially based upon the US ones but they contain some significant changes and additions. These two authors point out that the Australian standard is more inclusive than the US version because they refer to the information literate person rather than the information literate student. The CAUL standards are outlined in terms of defining an information literate person as someone who:

1. Recognizes the need for information and determines the nature and extent of the information needed.

2. Accesses needed information effectively and efficiently.

3. Evaluates information and its sources critically and incorporates selected information into their knowledge base and value system.

4. Classifies, stores, manipulates and redrafts information collected or generated.

5. Expands, reframes or creates new knowledge by integrating prior knowledge and new understandings individually or as a member of a group.
6. Understands cultural, economic, legal, and social issues surrounding the use of information and accesses and uses information ethically, legally and respectfully.
7. Recognizes that lifelong learning and participative citizenship requires information literacy (CAUL 2001).

The CAUL IL standards also have outcomes and indicators (See Appendix 2). IL standards, according to CAUL (2001), provide a framework for embedding information literacy in the design and teaching of educational programmes, and for assessing the information literate individual. They also outline the process by which academicians, librarians and others pinpoint specific indicators that identify a student as information literate.

According to De Jager and Nassimbeni (2003:109) while the standards set by these three bodies differ in some aspects they all seem to agree that the information literate person is one who:
(i)   Recognises a need for information
(ii)   Accesses needed information effectively and efficiently
(iii)   Evaluates information and its sources critically
(iv)   Incorporates selected information into her/his knowledge base
(v)   Uses information effectively to accomplish a specific purpose
(vi)   Understands economic, legal and social issues; uses information ethically
(vii)   Recognises that lifelong learning and participative citizenship requires information literacy.

Individual schools, colleges and universities specifically in the US, have adopted some of the standards discussed above to develop their own sets of IL standards. The initiative of developing other sets of IL standards that suit a specific environment is also encouraged by Snavely (2001) who proposes that the best way to advance IL in other countries, organisations and/or institutions may be by recreating the process in adopting another set of standards appropriate for different situations. In other words organisations and

institutions in developing countries that are in the process of developing IL policies and programmes can use these standards as well as developing their own to suit their specific environments. However, it should be taken into consideration that despite the difference that exists between the educational environment in the developed and developing worlds, students and other individuals in developing countries still require information literacy knowledge and skills to enable them to function in the information world in much the same way as their counterparts in other more developed countries. They must therefore have an international outlook that can allow them to acquire and develop basic skills, fundamental ideas, concepts and a broad range of knowledge encompassing an international perspective.

Across all nations information literacy should be considered a necessity for every individual because it equips him/her with knowledge and skills for understanding and competence in managing information for not only academic functions but all day-to-day activities and for life-long learning.

3.11   Assessment and evaluation of educational programmes
Assessment and evaluation of educational programmes as key components for the success of any teaching and learning programme, has been emphasised by many scholars including Fjällbrant and Stevenson (1978), Fjällbrant and Malley (1984), Frick (1990), Barclay (1993), Dillinger and Weech (1994), Pausch and Popp (1997), Breivick (1998), Donham and Stein (1999) and Grassian and Kaplowitz (2001) Although the two terms are sometimes used interchangeably according to Grassian and Kuplowitz (2001:267) they are different. These two authors contend that assessment encompasses the collection of data and the analysis of that data while evaluation involves judgement and the placement of a value on the data collected. The goal of evaluation is to make sense of the collected data. They further point out that evaluation occurs when data is examined to see if objectives have been achieved and that information about the adequacy and effectiveness of an instructional endeavour is provided. The results of evaluation contribute to the decision made about the fate of the instruction endeavour.

In educational programmes, assessment of student performance gathers information about what has been learnt so as to be able to ascertain what and how to teach (Donham and Stein 1999:206). In other words assessment is intended to identity the effectiveness of the learning/teaching process. Assessment should lead to some improvements, and revision of teaching techniques, teaching tools and the programme in general (Grassian and Kaplowitz 2001:266). Assessment has a very significant impact in motivating students' learning. According to Breivik (1998:52) programmes that are assessed, evaluated and graded by teaching staff tend to be valued by students because they regard what is evaluated as important. In the same vein Rust (2001), as quoted by Webber and Johnston (2003a:104), points out that one of the biggest influences on students' approach to their studies is the assessment regime.

In brief, assessment will be used here in relation to student performance assessment and evaluation will be used for programme evaluation.

Both positive and negative assessment results are considered to be useful for any programme. Corcoran and Langlois (1990) (they call it assessment), as cited by Grassian and Kaplowitz (2001:266) note that positive evaluation results can be useful for promoting the value of a programme and increasing its support base, while evaluation indicating negative expectations can be used to identify problem areas for improvement.

3.11.1 Types of assessment

There are two main types of assessment depending on the timing when the assessment is taking place as well as the purpose of that particular assessment. These may be termed either formative or summative.

3.11.1.1   Formative assessment

This type of assessment is used to provide feedback to the instructor and the student during the processing of delivering the module rather than at the end of it when improving performance in that particular module is no longer possible. It is intended to guide instructional planning, implementation or improvement. In most cases it is done

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during the development stage of a programme. It also refers to on-the-spot or spontaneous assessment made during instruction itself in order to monitor its effectiveness (Grassian and Kaplowitz 2001:274).

3.11.1.2   Summative assessment

Summative assessment is meant to determine the overall impact or outcome of a programme after it has been implemented. It is administered once the instruction is complete and the results may be used to determine if some standards or educational mandate has been met (Grassian and Kaplowitz 2001:274).

3.11.2 Approaches to IL assessment

According to Bober, Poulin and Vileno (1995) as cited by Pousch and Popp (1997) an assessment of library instruction programmes and activities must begin with a statement of mission and purpose. These two elements should precisely state what students should learn and have to be written in terms of student achievements and give detailed information about performance standards, evaluation procedures, evaluation results and use of results.

IL assessment should be approached in a way that demonstrates the requisite cognitive concepts and skills that are being learned. This means assessment undertaken should be applied to all forms of IL teaching modes (single class instruction, credit and non credit programmes, workbooks, web base tutorials and so forth. Pausch and Popp (1997), for example, reveal that assessment for IL should adopt methods that are aimed at assessing whether students have gained the cognitive skills for analysis, synthesis and evaluation of information. In order to ensure that assessment for IL is done effectively, IL programmes should have clearly defined goals and objectives upon which assessment can be made. To stress effective IL assessment Webber and Johnston (2003a:106-107) have outlined four factors and three modes that they regard as essential elements of an assessment framework in IL as follows:

Factor 1: Assessment should address a blend of purpose including:
- diagnosis (student entry level behaviour and progress at key points)

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- formative feedback (advice and guidance to improve performance)
- summative judgement (final adjudication of standards and level attained)
- course evaluation and quality audit (student performance and progress)

Factor 2: Assessment regime should display certain conditions including:

- relevance (degree of congruence between factors assessed and learned objectives)
- consistency (extent of agreement between assessors using the same assessment)
- authenticity (degree of fit with real world performance contexts)
- practicality (congruence with availability of staff/student time and other resources)
- equity (commitment to inclusiveness and sensitivity to special needs)

Factor 3: Recording of assessment should take a variety of forms in practice

- transcripts of test results
- portfolio of work

(the argument here is that there has been a concentration on questionnaires, worksheets, on-line work book/tutorials and short tests while neglecting others. The essence of using a variety of assessment forms is to be able to assess various levels of learning that range from lower to higher learning outcomes)

Factor 4: Assessment should address the learner's concept of and approach to learning

Example:
- qualitative/quantitative concept
- surface/deep approach

There should be an emphasis on conducting quantitative assessment and on methods that foster deep learning such as cognitive and critical evaluation

Mode 1: Expert assessment mode

This is a judgement and objective, it is considered to be a powerful factor in explaining surface approaches to learning by students. Examples of expert mode include tests set and bibliographies marked by librarians or academics.

This is a judgement and objective, it is considered to be a powerful factor in explaining surface approaches to learning by students. Examples of expert mode include tests set and bibliographies marked by librarians or academics.

Mode 2: Self assessment mode
Responsibility for assessment decision is taken on by the learner in the form of information behaviour and related products provided by themselves rather by tests. However, self-assessment is often left without giving feedback to help the student make a realistic assessment.

Mode 3: Peer assessment mode
Assessment responsibility is shared by participant's in-group learning structure. Experimental learning, informal peer reviews and informal guidance are conducive to effective learning.

3.11.3 Types of evaluation

According to Fjällbrant and Stevenson (1978:55) evaluation can be classified in three main types according to the methods used for data collection and analysis of information. These types are psychometric, sociological management and illuminative or responsive.

3.11.3.1   Psychometric evaluation
This is a quantitative measure, which makes use of pre and post-tests. It attempts to measure changes in experimental conditions involving two groups exposed to two different aspects. The main purpose of this method is to measure output in terms of predefined goals and no attention is paid to unexpected effects.

3.11.3.2   Sociological evaluation
This is a qualitative approach that measures the effectiveness of the programme in terms of the needs of the learner rather than the pre-test objectives. This method includes techniques of observation, open ended questions, personal documents, interviews, surveys and questionnaires. This type of evaluation examines changes in the structure of an organisation or the role of the participants in an educational programme and it permits responses that are not anticipated by the evaluator.

3.11.3.3 Illuminative evaluation

This attempts to illuminate the course or programme in order to give an account of all aspects, rather than measuring students' learning only. Illuminative evaluation focuses on the learning milieu, which is described as networks of cultural, social, institutional and psychological variables that interact in different ways for different courses.

3.11.4 Evaluation of information literacy programmes

Like any other teaching/learning activity, IL needs to be evaluated as a means of determining its success and facilitating its effectiveness. According to Cameron (2004:207) in the past the success of a programme was measured by the number of students or number of classes given instruction, however, the issue now is no longer finding out if information literacy reaches students but rather are students demonstrating learning and acquiring information literacy skills and competencies? (Cameron 2004:207). The reasons for doing evaluations of IL initiativesare underlined by Maughan (2001:74), who referes to assessment, as follows:

- To establish a base line of students' skills around which IL might be built.
- To assess the effectiveness of particular library instruction sessions or approaches to instruction.
- To determine the impact of library instruction programmes on student IL skills and academic success;
- To generate data with which to communicate with faculty.

However, despite the importance of evaluation being stressed frequently both in education and library and information science, a number of authors like Greer, Weston and Alm (1991), Dillinger and Weech (1994), Bober, Poulin and Vileno (1995), Young and Harmony (1999) and De Jager and Nassimbeni (2003) have registered their dissatisfaction concerning IL evaluation. The literature indicates that assessment studies in IL are not practiced effectively. Pausch and Popp (1997) observe that although many higher education institutions are engaged in evaluation of their programmes, courses, curricular, and so on, library instruction programmes have generally not been included in such evaluation. Pousch and Popp (1997) note further that where formal evaluation is being carried out, little full programme evaluation is being done and that most studies

report evaluation of particular parts of a programme such as content, methodology used, impact on student attitudes or the effectiveness of the programme itself in terms of cost and required resources. Similarly, De Jager and Nassimbeni (2003:112) note that reports on evaluation of IL initiatives are primarily based on favourable subjective student evaluations that do not attempt to quantify the amount learned. On questionnaires used for evaluation, Greer, Weston and Alm (1991) observe that most library questionnaires used in various assessments are geared to an academic population to address issues of user satisfaction.

Poor assessment and evaluation tendencies according to Young and Halmony (1999:73) have lead librarians often to rely on informal observations or verbal communication from a few students as an evaluation tool. Among the factors that lead to inadequate assessment for IL according to Grassian and Kaplowitz (2001:269), are constraints encountered by people involved in IL that include lack of expertise, time and funds to conduct evaluation.

Librarians are therefore faced with the task of designing evaluation programmes for IL initiatives that would in turn measure or assess student competencies objectively.

3.12   Information literacy worldwide

Information literacy has acquired a global perspective. People in all walks of life need information literacy skills for their professional, personal needs as well as for entertainment. Librarians, teachers, technologists and some policy makers are addressing the need for training and teaching of IL at all levels of education. Its global nature is demonstrated by the many IL initiatives that have been undertaken and documented throughout the world. This includes research, conferences, workshops, taskforces and several publications, all of which address IL from different perspectives. From these initiatives, policies, statements, standards and programmes for IL have been formulated. Worthy of mentioning is the world's Information Literacy Meeting of Experts organized by the US National Commission on Library and Information Science and the National Forum on Information Literacy, with the support of UNESCO. The meeting was held in

Prague, in the Czech Republic, September 20–23, 2003 with 23 countries represented from all of the five major continents. This meeting among other things, proposed the following six basic Information Literacy principles:

1. *The creation of an Information Society is key to social, cultural and economic development of nations and communities, institutions and individuals in the 21st century and beyond.*

2. *Information Literacy encompasses knowledge of one's information concerns and needs, and the ability to identify, locate, evaluate, organize and effectively create, use and communicate information to address issues or problems at hand; it is a prerequisite for participating effectively in the Information Society, and is part of the basic human right of life long learning.*

3. *Information Literacy, in conjunction with access to essential information and effective use of information and communication technologies, plays a leading role in reducing the inequities within and among countries and peoples, and in promoting tolerance and mutual understanding through information use in multicultural and multilingual contexts.*

4. *Governments should develop strong interdisciplinary programs to promote Information Literacy nationwide as a necessary step in closing the digital divide through the creation of an information literate citizenry, an effective civil society and a competitive workforce.*

5. *Information Literacy is a concern to all sectors of society and should be tailored by each to its specific needs and context.*

6. *Information Literacy should be an integral part of Education for All, which can contribute critically to the achievement of the United Nations Millennium Development Goals, and respect for the Universal Declaration of Human Rights.*

In addition to these six principles the meeting also recommended for consideration by the international community, the inclusion of IL within the United Nations Literacy Decade (2003–2012) (Information Literacy Meeting of Experts 2003). According to Abid (2004) the new Information Literacy Programme of UNESCO includes the following objectives:

- To foster development of an information literacy citizenry with the technical and critical thinking skills and abilities needed to identify, acquire, manage and use information to enrich all aspects of their work and personal lives.

- To identify and encourage effective practices in information literacy around the world.
- To promote information literacy through regional approaches and to facilitate exchanges.
- To propose innovative curricula about information literacy.
- To improve co-operation between government officials, researchers, educators, librarians and media practitioners.

UNESCO recognises IL as an important prerequisite for harnessing ICTs for education and fostering equitable access to information and knowledge thus UNESCO intends to empower people with IL because it enhances the pursuit of knowledge by equipping individuals with the skills and abilities for critical reception, assessment and use of information in their professional and personal lives.

UNESCO's main strategy in the area of IL includes raising awareness about its importance at all levels of the education process and establishing the guidelines for integrating IL issues into curricula; training teachers to enable them to incorporate IL into their teaching, and to provide them with appropriate pedagogical methods and curricula. Also among UNESCO's strategy is to integrate libraries into IL programmes because they provide the resources and services that foster free and open inquiry and serve as catalysts for the interpretation, integration, and application of knowledge; in all fields of learning (UNESCO 2006).

The initiatives that are being taken is a clear indication that IL is no longer an issue involving a few countries or a few institutions but rather an issue that has now acquired a global significance.

Various individual countries have reached different stages in the advancement of IL practice and its development generally. Some countries have established a good number of institutions, organisations and agencies at national level that have a lengthy history in IL. In those countries, their education institutions such as schools, colleges and

universities have reached advanced stages in terms of IL practices. In other countries different initiatives and approaches are being undertaken in a move to promote IL.

Various institutions have also chosen to pursue different models and approaches for IL programmes. Some of these approaches include programmes that are conducted as seminars or courses for first year students which include an IL component; stand alone credit or non credit bearing IL courses that are open to all students regardless of class standing or major; IL courses integrated within and linked to a general educational programme and some are instructional programmes intended to enrich an existing course commonly taken by all students. Under section 3.12 examples of IL initiatives and promotional efforts in different countries are discussed. Examples of IL programmes from selected institutions in those countries are discussed as well.

3.12.1 Information literacy initiatives in the United States

The US can be cited as a leading country in the world in terms of IL initiatives taken. In the US a substantial number of organisations and agencies working on IL have been established. Guidelines and policies on IL have also been formulated both at national and institutional levels. Schools, colleges and universities are extensively involved in various IL programmes.

The US was also among the first countries to work on IL standards. In 2001 the ACRL published the objectives for Information Literacy Instruction: a Model Statement for Academic Librarians (ACRL 2001). The document is intended to provide guidance in the development of the objectives for the five information literacy competence standards. The ACRL also developed the Standard Tool Kit consisting of instructional tools, web pages and other resources that can help anyone use the standards.

In order to ensure that IL is taught in an effective manner in terms of well developed teaching modules and competent IL instructors, the National Forum for Information Literacy (NFIL) and the Institute for Information Literacy (IIL) were created in 1989 and 1998 respectively. All these institutions were established to promote IL as a means of

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empowering individuals with skills suitable for the information society as well as supporting and encouraging IL initiatives at national level. According to Eisenberg, Lowe and Spitzer (2004:132) IIL is responsible for:

- Preparing librarians to become effective teachers in IL programmes
- Supporting librarians, other educators and administrators in playing a leadership role in the development and implementation of IL programmes
- Forging new relationships throughout the educational community to work towards information literacy curriculum development.

In 1998 the ALA-American Association of School Libraries (AASL) and the Association for Educational Communication and Technology (AECT) developed nine IL standards for learning for students in Primary and Secondary education called Information Power: Building Partnership for Learning (Rader 2003:30). Nine standards are outlined in this document designed to help students become skilful producers and consumers of information.

Other initiatives include many educational departments that have made information skills instruction a requirement. For example, the National Council for Accreditation of Teacher Education (NCATE) has made IL education an accreditation requirement. Librarians at Eastern Michigan University in Ypsilanti, Michigan founded LOEX in 1971. LOEX is a clearinghouse for library instruction, working to collect and distribute materials related to library instruction (Eisenberg, Lowe and Spitzer 2004:15).

3.12.1.1   Information literacy practices in US higher education institutions
According to Ratteray and Simmons (1995) as quoted by Rader (2003), the Commission on Higher Education, Middle State Association of College and Schools working with ACRL and NFIL surveyed 830 institutions nationwide to explore the status of initiatives regarding IL. The survey found that several institutions have developed formal assessment strategies for measuring IL outcomes and that IL was taught within the curriculum. Various US higher learning institutions have adopted different modes of IL teaching. These modes include stand-alone, online tutorials, course related, course

integrated instruction and workbooks. Examples of of these modes and the institutions where they are used are highlighted below.

- **Standalone programmes**

These programmes use a mixture of lecture, hands-on assignments and written research projects which are intended to give students both the technological skills and the critical thinking abilities needed to use print and electronic information resources found in libraries and on the Internet so that they can conduct research using both traditional and electronic information tools and resources.

Some of the institutions using this approach include: New Mexico State University, Purdue University and University of Washington (UW). The major emphasis in these programmes is to introduce and concretise among students the core concepts of information retrieval and essential techniques for finding, synthesizing, evaluating and sharing information.

- **On-line tutorials**

On-line tutorials are offered to students in the form of modules in order to equip students with skills that would allow them to use information in its different forms and context. Among the universities using on-line tutorials are University of Wisconcin-Parkside (UWP), Cornel University and James Madison University (JMU).

At JMU for example, the Information Seeking Skill Test (ISST) librarians teaching staff have develop a nationally recognized program that requires JMU students to learn and demonstrate mastery of essential skills in information retrieval in their university career. In General Education Cluster 1 courses, students complete "Go for the Gold", a Web-based instruction program for information seeking skills. Go for the Gold is composed of eight learning modules with instruction, illustrations, links to databases and Internet sources, and exercises that are immediately scored online. In addition to Go for the Gold, students in Cluster One are given assignments, such as research papers, annotated bibliographies, and speeches, that require them to find and evaluate information in a

variety of print and electronic sources, thus strengthening their newly learned skills (JMU 2004). The modules for Go for the Gold are:

Module 1 - Orientation to Carrier Library

Module 2 - An Introduction to the Information World

Module 3 - Searching Electronic Databases

Module 4 - Finding Information Resources

Module 5 - Using Internet Sources

Module 6 - Evaluating Sources of Information

Module 7 - Information Ethics: Citing Sources and Fair Use

Module 8 - A Search Strategy for Research Papers and Speeches (JMU 2004).

Students are required to demonstrate the following competencies by passing the Information Seeking Skills Test (ISST) that has the following requirements:

- Identify and locate library services and collections.
- Formulate and conduct an information search that includes a variety of reference sources, such as encyclopedias, library catalogues, indexes, bibliographies, statistical sources, government publications, and resources available on the Internet.
- Evaluate information in terms of accuracy, authority, bias, and relevance.
- Employ efficient database searching techniques, such as use of Boolean operators, truncation, phrase searching, nesting, and field-specific searching.
- Identify the bibliographic elements essential for properly citing an information source.
- Apply appropriate ethical guidelines to the use of information.

- **Course related assignments**

North Carolina State University (NCSU) has developed an IL course related tutorial known as LOBO. LOBO is a web-based information literacy tutorial developed by NCSU Libraries for providing baseline search skills for new library users. The tutorial takes students through the entire research process and is a mandatory part of the Freshman Composition curriculum and is designed to help students do assignments that

require library research. LOBO is divided into several sections in order to enable students to accomplish their assignments step by step that include the following:

- The research process
- Defining a research need
- Developing a research strategy
- Conducting research
- Evaluating resources
- Using resources (NCSU 2004).

- **Workbooks**

Students at Temple University are required to complete a library skills workbook before starting their second semester. The workbook is aimed at helping students become independent learners (Eisenberg, Lowe and Spitzer 2004:136).

- **Course-integrated instruction**

These are IL courses that are linked to other academic courses. Both librarians and academic staff collaboratively design assignments that are integrated into courses (Eisenberg, Lowe and Spitzer 2004:137). Among the universities using this approach include Florida International University, Tri-Country Technical College and The University of Arizona.

The general trend in many US higher learning institutions is to link IL with their general curriculum. As already pointed out under section 3.10.2 various institutions have adopted the ACRL Higher Education IL Standards to develop their own IL competence standards. Along the same lines State-wide University System and individual colleges and universities have undertaken strategic planning to determine information competence and to incorporate instruction in information competence throughout the curriculum as well as adding information competence as a graduation requirement for students (Eisenberg, Lowe and Spitzer 2004:139).

It can therefore be concluded that with the establishment of a number of organisations and agencies that deal with IL at local and national levels, the involvement in IL by

institutions both in higher and lower levels as well as policies and guidelines formulated nationally indicates the seriousness taken in the US regarding the importance of IL.

3.12.1.2   IL competence assurance

As already pointed out under section 3.10.3 various institutions have adopted the ACRL Higher Education IL Standards to develop their own IL competence standards. Along the same lines State-wide University System and individual colleges and universities have undertaken strategic planning to determine information competence and to incorporate instruction in information competence throughout the curriculum as well as adding information competence as a graduation requirement for students (Eisenberg, Lowe and Spitzer 2004:139). Some of the universities that have developed their competencies include:

- State University of New York System (SUNY). (See Appendix 3)
- University of Massachusetts System (See Appendix 4)
- University of Arizona.

It can therefore be concluded that with the establishment of a number of organisations and agencies that deal with IL at local and national levels, the involvement in IL by institutions both in higher and lower levels as well as policies and guidelines formulated nationally indicates the seriousness taken in the US regarding the importance of IL.

3.12.2   Information literacy in European countries

For many years librarians in European countries have been involved in teaching library users to use libraries and its resources in an effective way. In the years before the term IL became widely used the emphasis was mainly on user education, library instruction or reader education (Virkus 2003). However, this has now changed and IL is the main preoccupation in many institutions. A number of projects, conferences, workshops and the establishment of organisations as well as agencies for the promotion of IL activities on the continent and individual countries and across nations demonstrate the importance of IL in Europe. Some of these organisations include The European Network on Information Literacy (ENIL) and The International Alliance for Information Literacy (IAIL). ENIL is a network of scientists and researchers actively involved in IL drawn

from 14 European Union countries (EU). ENIL was established by an initiative of the Italian National Research Council. Its aims among others include:

- the promotion of IL in the European Union
- the advancement of European co-operation in the field of IL and
- the exchange of experiences and discussion of best practice examples

(ENIL 2004).

IAIL is an organisation that has been established following the Prague Conference of Information Literacy Experts held in the Czech Republic in 2003. IAIL is an alliance of four organisations drawn from the US, Europe and the Antipodes, namely the Australian and New Zealand Institute for Information Literacy (ANZIL), European Network on Information Literacy (ENIL) (European Union), National Forum on Information Literacy (US) and NORDIINFOR (Nordic Countries). The purpose of this alliance is to facilitate the sharing of information and expertise on information literacy across regions and nations of the world (IAIL 2004).

Following below under section 3.1.2.1 is a brief description of IL activities in some European countries namely the UK, Sweden, Denmark and Finland. These countries have been chosen for this description to represent and demonstrate initiatives in IL being undertaken in Europe. Further information about the Australian and New Zealand initiatives is given in section 3.12.4.

3.12.2.1   Information literacy initiatives in the United Kingdom

Academic and school libraries in the UK have been actively involved in developing theories and programmes mainly on user education/user instruction (Rader 2003:36). However, according to Godwin (2003:89), due to the changing agenda in education and the impact of the hybrid library, user education has moved towards IL. Despite the lack of explicit national recognition of the importance of IL *as it is in the US* (stress given by author) higher education, particularly higher education libraries, is a sector that has been actively involved in information skills programmes (Town 2003:56).

According to Corrall (2000:7) SCONUL has been the main body that has been involved in promoting IL. In 1998 a SCONUL Task Force was created to prepare a statement on information skills for higher education. Johnson (2003:45) reports that the SCONUL task force was created as a result of increased awareness of information skills training as an important strategic issue for university and college and information services, a major concern being that, the importance of information skills in relation to use of IT in higher education was overlooked. Among the initial tasks that were set for SCONUL was to assess the size and scope of information skill activities in UK higher education and to identify principles of good practice in the area both within the UK higher education and that of other countries (Johnson 2003:45).

In 1999 SCONUL came up with the seven sets of skills "Seven Pillar Model of Information Skills" developed from a basic competence in library and information technology (Corrall and Hathaway 2000:7). Since then the Seven Pillar Model has been drawn on in a number of curriculum developments (Johnson 2003:45). This model combines ideas about the range of skills involved between information skills and IT skills and the idea of progression in higher education embodied in the curriculum for both undergraduate, and postgraduate as well as research-based endeavours (Johnson 2003:45).

Under SCONUL's umbrella, a number of activities for promoting IL have been undertaken. This includes a conference held at Warwick University in 2000 to discuss the Seven Pillar Model (Corrall and Hathaway 2000). SCONUL continues to be active in awareness raising, influencing stakeholders, discussing how best to implement IL programmes especially concerning the question of generic versus subject-based and investigating and auditing IL practices in both UK's higher and further education (Johnson 2003:49).

Development of information skills and making it a central part of the curriculum in UK higher education is increasingly being accepted. In response to this, a number of

institutions have started developing learning materials to cater for different groups of information users. Some of those initiatives are provided below.

3.12.2.1.1   Open University

At the Open University (OU) the Library's Information Literacy Unit (ILU) and Centre for Outcomes Based Education (COBE) have developed information literacy web-based resources namely SAFARI (a generic web-based resource) and MOSAIC (a stand-alone information literacy course). SAFARI is designed for use by students to meet a broad range of information skills outcomes. It is also designed for integration into the curriculum (Dillon et al. 2003:67). MOSAIC is a ten Credit Accumulation Transfer Scheme (CATS), a course focusing on information skills at HE Level 1. It has some supporting printed material and grew from experience gained from SAFARI. The skills developed are closely linked to those identified in the Seven Pillars Model (Dillon et al. 2003:68).

3.12.2.1.2   South Bank University (SBU)

In 2002 South Bank University (SBU) set up project model benchmark information skills at five levels along with IT communication and Career Management based on SCONUL's Seven Pillars. The model defines students' competencies at five levels with level O as the foundation Level 1 at undergraduate Year One, Level 2 at Year Two, Level 3 at Year Three and M at Masters Level (Godwin 2003:90). The model accommodates courses with different skills required for application to a wide range of subject disciplines. The model combines skills ranging from basic search skills at level 0, to developing understanding across skills 1-6 at level 1. Level 2 builds upon these skills and encourages students to work more independently. Level 3 builds skills to undertake projects and to access a range of resources as well as the ability to research for dissertations (Godwin 2003:90). The details are shown in Appendix 5.

3.12.2.1.3   Other initiatives

According to Virkus (2003) a number of universities in the UK, traditional and online courses on IL are being conducted. Leicester University provides material for distance

learners to help them use information resources. At Strathclyde University and Southport College a formal credit-based course is offered while an accredited information skill module compulsory for all first year undergraduate students is in place. Aberdeen University conducts pre and post-test assessment that encourages students to track their progress after attending information skills. This process enables the students to recognise the value of attending information skills sessions (Virkus 2003).

Other universities with various forms of IL include: The Robert Gordon University, The University of Bristol, The London School of Economics, The University of Nottingham, The University of Bradford, Aston University and Coventry University.

3.12.3. IL in Nordic Countries

Nordic countries have established the NORDINFOlit as a Steering Committee for overseeing the development of IL in those countries. Every Nordic country is represented. The work of the committee is primarily focused on four areas:

- A Nordic summer school for IL
- Seminars on and standards and guidelines for integrating IL into higher education
- An international conference on creating knowledge
- A web forum and network for discussing and documenting NORDIC best practices for IL

3.12.3.1   IL in Sweden

For more than 20 years, academic librarians in Sweden have been involved in user education (Rader 2003:38). However, according to Strom (2003) the situation of user education in Swedish academic libraries varies from one library to another. However as the importance of IL continue to expand worldwide, librarians and teachers are closely working together and striving to integrate IL in the curriculum and make IL an important aspect in the education system. .There is some good examples of user education/IL initiatives undertaken by individual universities and others in the form of broader projects. For examples,

- Academic libraries such as Chalmers University library have successfully fully integrated user education in the curriculum (Strom: 2003).
- According to the program on IL by for over twenty years Chalmers University has been running an IL programme for undergraduates. This programme is compulsory and credit earning Fjällbrant (2000:26-27).
- Skove academic library offers a credit course in IL.
- At national level the BIBSAM-Report was written in 1996 as a general policy for academic libraries, and it stresses the importance of integrating IL into the curriculum (Strom 2003).

In general the relevance of IL in Sweden is starting to grow steadily, and this is reflected in the number of conferences, courses and seminars held on the theme of IL, for instance the Creating Knowledge Conference by the Nordic forum on IL that was first held in 1999 and is now held every other year. Research in IL at masters and doctoral levels is also being conducted (Strom 2003).

3.12.3.2   IL in Denmark

Like other countries in Europe, Danish librarians have also been involved in teaching library users to use the library effectively. In the 1960s and 1970s instructional courses in research libraries mostly focused on introducing the use of library catalogues and familiarising students with library regulations (Skov and Skærbak 2003). However, in meeting the challenges of the curriculum revolution that is taking place, emphasis is now placed on independent study, information seeking and problem solving a situation that has made information literacy an important issue.

According to Skov and Skærbak (2003) in an IL context the Danish Electronic Research Library (DEF) and Danish National Library Authority are the two organs that play crucial roles, through making available digital learning resources through DEF-Portal and through provision of grants to a number of user education/IL projects.

3.12.3.2.1   IL integration into the curriculum

In most cases IL education is carried out by librarians, in some institutions subject specialists with an academic background teach more advanced subject specific courses. Integration of IL into the curriculum in higher education has proved to be difficult despite librarians being concerned about it as key for its success. Obstacles leading to this problem as pointed out by Skov and Skærbak (2003) include poor collaboration among teaching staff and librarians, lack of incentives from parent institutions for collaboration and negative perceptions by teaching staff of the role of the librarians in advancing students' learning.

Despite these barriers some initiatives towards integrating IL in the curriculum have been undertaken. For example in The Royal Agricultural University, Denmark's Pharmaceutical University, the University of Southern Denmark and Technical University of Denmark, courses in information searching are part and parcel of credit earning and compulsory subjects. At the same time at Holstebro School of Therapy and Physiotherapy, integration of IL into the curriculum is under way. In addition CVU Midte Vest, a Centre for Higher Education encompassing a number of institutions has received funding (DDK 4,000,000) for a two year project on the integration of IL into the curriculum (Skov and Skærbak 2003).

3.12.3.2.2   Notable IL initiatives

Web-based tutorials

A number of IL tutorials through web pages have been developed in some Danish research libraries as a move to enhance flexible "just-in- time" learning and to support IL. According to Skov and Skærbak (2003) these web-based tutorials include:

- **Godin**
  Godin was developed by Roskilde University Library as a part of a larger project concerned with problem-based learning of information searching. It provides an overall presentation of different search techniques, different material formats as well as exercises in information searching.

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- **The Metro**

  Metro was developed as a joint venture between teachers and researchers at the Faculty of Modern Languages, Hypergenic. The Metro is a virtual Learning Resource Center (LRC) using a metro map metaphor as a guidance system to quality-assessed information resources and learning and study tools.

- **InfoTutor**

  Info tutor was developed by the libraries at the Business Schools in Aarhus and Copenhagen together with the library at the University of Southern Denmark. It provides a number of resources including information searching, quality resources, evaluation of resources, as well as guides to writing, research, and documenting sources.

- **Streaming Web-based Information Modules (SWIM)**

  SWIM integrates the formation of information literacy into the student's information retrieval processes. Its modules are based on streaming-server technology, which gives the user direct, quick access to video-sequences, as well as other multimedia elements, via the Internet. This tutorial is developed as an interactive, narrative simulation of a social situation such as an information searching process in which the student completing the tutorial has to make a number of choices about search strategy and problem solving.

- **Introduction to the library**

  This is a tutorial developed at Royal School of Library and Information Science, it consists of two modules: one on information resources and one on searching the catalogue. The emphasis is on building search profiles and interactive measures through activities such as quizzes and jeopardy contests.

- **Introduction to information searching tutorial**

  This is a tutorial developed by the Technical Knowledge Centre of Denmark, and was the first online tutorial to be produced in Denmark. It focuses on search techniques and on use of databases and the library OPAC. It is the backbone of a compulsory course with limited classroom attendance; students work independently with the tutorial and submit their questions and assignments via e-mail.

IL interest groups

According to Skov and Skærbak (2003) there is also a growing interest among information professionals in forming special interest groups to promote IL such as:

- The Danish Union of Librarians that is involved in the effort to support information literacy projects via its development fund. It has two interest groups: "Libraries and education" involving members from the upper secondary school (*gymnasium*) libraries, the libraries of vocational educational institutions, and the centres for higher education for adult learners (VUCs). The second group focuses on the teaching role of the librarian in particular, involving members with teaching responsibilities from all library sectors.
- Special interest group on user education. This is under the Danish Research Library Association (DF). This group is aimed at academic and university libraries.

The main activities of these three interest groups are to arrange conferences and seminars, and to write articles in professional journals. They thus play a very important role in setting the agenda for information literacy discussions and knowledge sharing. Furthermore, the groups maintain home pages with news, electronic conferences, and a collection of links to information, documents and activities.

3.12.3.3   IL in Finland

As with academic libraries in other countries, in Finland teaching library users how to use libraries has been done since the 1950s. Since the 1970s scientific libraries have became involved in a systematic and organised approach to teaching library users to become acquainted with the library catalogue, systems and tools in a more rational way (Sinikara and Jarvelainen 2003:333). The reasons for the shift from teaching library skills to IL, among other reasons, as pointed out by Sinikara and Jarvelainen (2003:333) include the developments in Finnish Universities in the 1990s which in turn involved:

- Changes in the university funding system that is based on performance. Since 1990s resource allocation has depended on degree completion rate. The more completed degrees a university achieves, the more funds it receives. This situation

has led universities to shorten the period of studentship and to create better conditions and facilities.

- Changes in the field of teaching and learning among Finnish Universities.
- Support by the Finnish Government of the information society.

In other words these changes prompted universities to undertake some transformation measures that also led libraries to articulate changes. According to Sinikara and Jarvelainen (2003:334) these changes influenced the user education teaching model to shift to IL, that is putting more emphasis on student information and knowledge rather than library knowledge. A holistic way of teaching based on problem-solving was being promoted thus changing the role of libraries in the teaching process. User education had therefore to be re-examined

According to Sinikara and Jarvelainen (2003:336) in order to establish a workable starting point for promoting IL the following took place:

- In 1992 and 1998 trips to under study IL practices in the US and UK universities were undertaken by Helsinki University staff.
- Nation wide seminars to explore policy issues and evaluation of the suitability of IL in Finish Universities were held.

One of the notable seminar was "Information Literacy Education and Libraries" organised by The Finnish Research Library Association and the Council of Finnish University Libraries held in Helsinki. During this seminar the UK SCONUL model was presented and studied. Among the issues that were given indepth considerations were:

- The need for production and availability of effective learning resources
- Development of appropriate assessment strategies
- Approach for the integration of IL competence into subject specific disciplines through a flexible delivery based on SCONUL's model (Andretta and Sinikara: 2003:34). The seminar also introduced a national wide programme for the development of target-oriented IL education at all university and polytechnics.

In general the cooperation between Finnish libraries has been fundamental in introducing and advancing IL in Finland. In Finnish academic institutions IL is being given high

priority and it is recognised as a tool for fostering a culture of independent student centred learning. Various initiatives and efforts that are being taken both at institutional and national levels are very encouraging. With the establishment of NORDINFO it is very likely that still more will be achieved.

Initiatives on IL are also reported in other countries in Europe including Norway (Aundunson and Nordlie 2003), Germany (Homann 2003), France (Chevillotte and Noel 2003), The Netherlands (Boekhorst 2003), Portugal (Correia 2003) and Spain (Hernandez and Urena 2003). Other countries that are actively involved in IL include Canada and China.

3.12.4 Information literacy in Australia and New Zealand

Australia and New Zealand are among the countries where IL is a well-developed concept and where the practice of IL is advanced. At various educational levels a good number of educational institutions have embraced the IL concept and have developed their IL programmes (Eisenberg, Lowe and Spitzer 2004:34). IL initiatives in Australia originated in the school library sector in the 1970s and in New Zealand during the mid 1980 (ANZIIL 2004). A number of bodies support the development of IL in these two countries. This includes:

- Council of Australian University Libraries (CAUL)
- The Australian Library and information Association (ALIA)
- National Working group for TAFE Library Services (NWGTLS)
- Council of New Zealand University Librarians (CONZUL)
- Library and Information Association of New Zealand and Aotearoa (LIANZA).
- Australia and New Zealand Institute for Information Literacy (ANZIIL)

ANZIIL is an institution that came into being as an outcome of The CAUL Information Literacy Standards Workshop held in 2000 (ANZIL 2004). The delegates who attended this workshop came from Australia and New Zealand universities, schools, the Council of Australian State Libraries (CASL) and ALIA. ANZIIL was established on the understanding that its establishment would contribute to the national IL agenda by addressing the development of IL in education; educationally, professionally and

politically. ANZIIL achieves its mission by identifying, facilitating, fostering and supporting best practices in IL through professional development, promotion, marketing, advocacy and research. ANZIIL supports organisations, institutions and individuals in the promotion of IL and in particular the embedding of IL within the total educational process. ANZIIL also works in collaboration with various national and international organisations, forums and groups in order to complement their existing IL aims, objectives and initiatives. In particular ANZIIL works closely with CAUL, CONZUL, ALIA, LIANZA and NWGTLS (ANZIIL 2004).

3.12.4.1   Initiatives and development

Initiatives and the development of IL in Australia and New Zealand can be traced through a number of reports and events that took place in different periods. According to Bundy (2004a) in 1989 the Australian National Board of Employment, Education and Training commissioned the Ross Report *Library provision in higher learning institutions 1990*. This was the first of the many reports that refer to the importance of IL. Other significant reports and events related to IL development include the following:

- *The 1992 Australian Higher education Council's report 'quality of higher education'*
  This report among other items defined the required characteristics of graduates in terms of their generic skills that included critical thinking, intellectual curiosity, problem solving and independent thought, effective communication and related skills in identifying, accessing and managing information.

- *National information literacy conferences*
  From 1992 national information literacy conferences were conducted biannually for ten years by University of Western Australian Association with the Australian Library and Information Association (ALIA).

- *Recommendations by the Library and Information Association of New Zealand and Aotearoa (LIANZA)*
  Between 1996 and 2000 the LIANZA taskforce on information literacy identified issues and made recommendations to the national government relating to the development of information literacy in New Zealand in the context of information policy.

- *Publication of the Seven faces of information literacy*

In 1997 the Seven faces of information literacy[5] (award winning Australian doctoral research by Dr Christine Bruce by Auslib Press) was published. This research attracted worldwide interest and usage, provided a theoretical and phenomenological approach to information literacy.

- *Workshop on information literacy competency standards*
  The information literacy competency standard workshop was convened in 2000. The first edition of Australian and New Zealand information literacy standards was drafted in this workshop.

- *ALIA first national round table on IL*
  In 2001 ALIA conducted the first national round table on IL to bring together educators, librarians, and business, professional and community leaders.

- *Australian and New Zealand Institute for Information Literacy (ANZIIL) establishment*
  In 2001 Australian and New Zealand Institute for Information Literacy (ANZIIL) was established.

- *CAUL IL skills survey*
  In 2003 CAUL published the IL survey for the assessment of IL in higher education. This document was designed for use by librarians and academics who signed an authority to investigate the IL of students in specified academic disciplines.

All these initiatives signify the importance that has been attached to IL in Australia and New Zealand. Bundy (2004a) points out that, most universities in Australia and New Zealand have defined and publicised the attributes acquired by their graduates during their studies. In some of the universities IL is a specific graduate attribute and an underpinning strategy for other graduates to achieve. Further to this, numerous universities had formally endorsed the IL standards as a resource for conducting and developing IL practices and programmes for the students.

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[5]See section 1.3.3.2

3.12.4.2 IL in Australian and New Zealand universities

This section highlights some IL approaches and practices that have been taken by various universities in Australia and New Zealand. As it will be shown universities have taken different approaches and are at different stages of implementing IL programmes. The common denominator among them is that *Standards* developed by CAUL are used as their guide for IL initiatives.

These are among the approaches used for delivering IL programmes by Australian and New Zealand:

- **Face to face class sessions**

  Face to face class sessions developed by librarians and teaching staff are conducted during student's usual tutorial time. Examples of such sessions are from Bond University and Charles Darwin University (Bundy 2004a).

- **On-line tutorials**

  On-line interactive tutorials are widely used by various universities to deliver IL programmes. On-line tutorials such as Info-Trekk and InfoTrekk-plus are used at Curtin University of Technology. On-line tutorials are also used at Lincoln University, University of Sydney and University of Technology, Sydney. All online modules used by these universities directly address components of the *standards* (Bundy 2004a).

- **Print guides**

  A number of universities are using a combination of different approaches for IL delivery that supports effective use of information. For example, Curtin University of Technology has developed a number of IL programmes such as a Self-paced information literacy module; Self-paced Introduction Package (SPI), Step-by-step guide (for the library catalogue) and Step-by- step guide for searching library databases. These are all programmes in print format designed to takes students through the steps of searching for journal articles and major databases.

- **Integrated IL programmes**

  Other Universities have developed a formalised and integrated information literacy programme in order to provide every student and staff member with the opportunity to acquire information literacy skills, and to strengthen its role in the learning, teaching and research activities of the university. Such a programme is at the University of Western Sydney (Bundy 2004a). According to Bundy (2004a) these programmes are conducted under a close collaboration between academic staff and librarians

Some universities such as Monash University and University of Sydney have developed information literacy policies and frameworks that are based on standards as benchmark for IL programmes. The framework describes a number of information literacy services, their objectives, content, method of delivery and evaluation. In particular, the objectives reflect the overall goal of achieving the outcomes outlined in the *Standards* (Bundy 2004a).

In Australian and New Zealand universities it can be concluded that the importance of IL as an essential attribute for university graduate's core skills is recognised in almost all universities. The *Standards* are used as guiding principles all information literacy programmes, offered generically and through customised sessions and programmes coordinated (Bundy 2004a). Application of the *Standards* has been incorporated in numerous disciplines via the integration of information literacy units timetabled into the programme's curriculum, as well as the development of online modules directly addressing components of the *Standards* (Bundy 2004a).

3.12.5 Information literacy in developing countries

The issue of IL in developing countries has not been given its due recognition as an important educational aspect by information and library professionals or by others (Pejova 2002). According to Pejova (2002) in order to improve IL in developing countries it involves addressing many problems pertaining to the library and information sector that among others include the following:

- Securing adequate financial resources
- Intensifying the education and training of the information and library staff
- Improving the organisation and management of the information and library systems and networks
- Increasing productivity
- Upgrading the ICTs

However, there are some developing countries that have made significant steps towards implementation of IL programmes. For the purpose of this study, examples of IL initiatives in developing countries will be limited to Africa.

3.12.6 Information literacy in Africa

Many African countries have neglected information literacy as an important aspect of education (Ojedokun and Lumande 2005:123). However, as discussed under 3.12.6.1 when compared to other African countries, South Africa has made significant steps in terms of information literacy initiatives. In most African countries as in many developing countries at various levels of education, students are unfamiliar with a variety of information sources within and outside the library. The poorly resourced educational backgrounds of many school students, particularly as regards library facilities has been discussed by many authors including Zaki (1991), Behrens (1992), Tawete (1999) and Machet (2005). A number of reasons for this problem have been given. For instance, that in most of these countries the information service of which library services form a part has a weak base. In many African countries public libraries are few, under-resourced, school libraries are also under-resourced or do not exist in many areas and for that reason most of the students have not been exposed to information technologies and other information sources in general. Machet and Behrens (2000:8) observe how the problem of the school system in relation to poor and low levels of information skills affects new undergraduate students by noting that:

> *Under-resourced government schools, most of which do not have libraries, insufficient textbooks and inadequate information and communication technologies (ICTs) available in schools lead school learners to leave their schools without the skills needed to retrieve information from books and unable to use resources collection like libraries.*

This problem persists up to college and university levels because students enter higher education unprepared with regard to information skills (Erasmus 2001:18; Machet 2005:181). Poor library and information skills among university students in Africa have also been reported by other authors including Bell (1990), Zondi (1991; 1992), Jacobs (1997), Sayed (1998) and Machet (2005). For example, referring to first year students at University of Namibia, Jacobs (1997:80) acknowledges that many discover the university with awe and wonderment probably because for most of them the university environment becomes their first taste of the formalised information services. In Tanzania, according to Tawete (1999:155) the majority of students entering college and university libraries approach books with a psychological fear. In South Africa Machet (2005:181) observes that most students entering tertiary education institutions have too few skills to deal with the complex information environment of today.

Another reason for students' poor use of and lack of exposure to effective use of library facilities is the way students are oriented to learning and the way they have been taught prior to entering universities and other higher learning institutions. In most of those institutions students are not being adequately prepared to solve the problems they bring with them from the lower levels of their education. Among the other reasons that lead to a low level of library and information skills in university students are the teaching and learning strategies employed at university. Zondi (1991) points out that some teaching strategies do not cultivate independent learning. Use of textbooks and prepared lecture notes discourages originality by not requiring independent thought and critical judgement. Inability to integrate teaching with use of library resources also prevents students from acquiring information handling skills (Zondi 1991:149;1992:207). These views concur with Dike's (1993) view as cited by Tawete (1999:156) who argues that lack of emphasis on library use is due to the education system in many developing countries being traditional in its orientation with emphasis on rote-learning concentrating on teacher dominated methods of instruction and rigid syllabi.

These observations drawn from studies within Africa can also be linked to other studies undertaken abroad. Studies by Jacobson (1988) in the US and Robertson (1992) in

Scotland also confirm the inefficient use of libraries and other information sources among students from developing countries. According to Robertson (1992:45) a survey conducted among foreign students in Scotland found that 90% of the students sampled could not use certain tools like abstracts and indexes while 50% did not understand the library's classification system and 40% used the libraries OPACs with only limited effectiveness. It can therefore be pointed out that, in general in developing countries students at various levels are not exposed to effective use of libraries and information resources because of the existing education system that is in place. This is attributable to lack of libraries, lack of information resources and teaching methods that do not consider information use a core aspect for learning. Where programmes for instructing students to use information sources are found those programmes are weak in many respects.

Despite this generally poor situation regarding IL programmes, some institutions in African countries have started to take IL seriously as an educational issue, with South Africa cited as a good example.

3.12.6.1   IL initiatives in South Africa

As already pointed out under 3.12.6 in Africa, South Africa has made some significant initiatives towards IL development. In South Africa according to De Jager and Nassimbeni (2002:168) education transformation at various levels as well as the increasing adoption of ICTs have been the main foci of IL attention. The two authors observe further that in tertiary institutions IL policy framework is drawn from three policy domains namely education, information communication technology and library and information services. This section discusses IL initiatives that have been undertaken in various South African universities. Some specific IL studies undertaken in some of those universities are also discussed.

3.12.6.1.1   The INFOLIT Project

According to Underwood (2002) the major impetus for the recognition of the importance of IL in South Africa was the Western Cape Library Cooperative Project report (also known as the Senn Breivik report) of 1992. This report, among other aspects, addressed

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the need for cooperation in academic planning among tertiary education institutions of Western Cape as a means of achieving transformation with limited resources. Weakness in access to information and management of information resources were also identified as problems that could be solved through cooperation and IL was identified as a key part of the solution (Underwood 2002). The Senn Breivik Report therefore recommended the establishment of a pilot project that aimed at promoting IL. A grant of USD 1 million was provided and the INFOLIT Project was established in 1995 by the Cape Library Cooperative (CALICO) and the Adamastor Trust, a consortium of five higher education institutions in the Western Cape Province. The institutions in this consortium are University of Western Cape (UWC) University of Cape Town (UCT), University of Stellenbosch, Peninsula Technikon (PT) and Cape Technikon (CT).

At its inception CALICO's mission was to promote IL and the economic development of the region through the provision of information to users in an easily accessible way and at an affordable price (CHEC 2005). The vision and mission of CALICO was adjusted in 2004 and CALICO became the Cape Library Consortium (CALICO). CALICO is now a collaborative library project of Cape Higher Education Consortium (CHEC). CHEC represents four tertiary institutions in the Western Cape of South Africa namely: UWC, UCT, University of Stellenbosch and Cape Peninsula University of Technology (CPUT): the result of a merger of Peninsula Technikon and Cape Technikon.

The INFOLIT project aimed to promote IL education in higher education, secondary and primary schools as well as in communities across the Western Cape region. The primary objectives of the project according to Underwood (2002) were:

- Promoting the concept, value and importance of IL in the context of globalisation and redress to key players in the region
- Launching a series of pilot projects to explore and establish means of spreading IL education in the region and
- Investigating IL models, programmes and initiatives in other countries that could be adapted to local conditions.

3.12.6.1.1.1 INFOLIT's achievements

According to Underwood (2002) the INFOLIT project managed to achieve many of its objectives, the major one being the creation of awareness of the importance and potential of IL among librarians and teaching staff through conducting seminars and workshops. Underwood (2002) underscores the fact that the INFOLIT project has also been able to promote the importance of IL at each of the five institutions by noting its recognition by senior management as a strategically significant tool for developing transferable skills among various student programmes. Other achievements by INFOLIT include:

- Undertaking pilot projects in the institutions that aimed to improve undergraduate teaching and learning. Some of these pilot projects include:
  - o Improving students' IL skills in each of the five institutions through appropriate training in the use of INSPEC database (University of Cape Town).
  - o Providing an arts information literacy package (University of Western Cape)
  - o Building Web-based resources to improve biological information literacy (University of Western Cape)
  - o Developing an information laboratory of Electrical Engineering aimed at producing a web-based information source for students using multi-media facilities (Peninsula Technikon)
  - o Producing the INFLEX: an undergraduate Law IL course that aimed to integrate information literacy training into a revised law course. (University of Stellenbosch)
  - o Introducing an integrated academic literacy programme aimed at integrating IL education with an introductory engineering course. (University of Stellenbosch)
  - o Using search engines of the Internet, a set of hyper media courseware simulations to familiarise students with the critical use of search engines (University of Western Cape).

The INFOLIT Project also sponsored the development of a web-based IL course developed by staff of the Cape Technikon Library Services. The site explores how to

find, evaluate, use and communicate information. The site is available for all five tertiary institutions in Western Cape (Underwood 2002).

3.12.6.1.2 Information literacy in Western Cape secondary and primary education

According to Zinn (2000) the education restructuring that has been taking place in South Africa since 1994 also enabled IL to be inculcated in secondary and primary education. In the Western Cape an interim policy on information skills was introduced which made information skills a compulsory subject in schools. This move was further supported by the appointment to the Western Cape Department of Education of a subject advisor for information skills (Underwood 2002). In 1999 the INFOLIT Project launched a study on IL in Western Cape schools. Although patchy, IL provision was available and the report identified active support for it (Underwood 2002).

3.12.6.1.3 Other IL initiatives in South African universities

While the literature indicated significant efforts and development of IL in the Western Cape Province and the University of Western Cape in particular, in other regions and universities there have been some initiatives that are taking place.

3.12.6.1.3.1 University of Witwatersrand

According to Underwood (2002) in Gauteng Province there are some initiatives to extend IL beyond educational institutions to the community. The LINK centre at the University of Witwatersrand is working with Multi-Purpose Community Centres (MPCCS) to offer information skills courses to people who have never used computers. The purpose of these courses is to provide computer skills that would enable people to find community information.

3.12.6.1.3.2 University of South Africa (UNISA)

The University of South Africa, mainly specialises in distance education and has developed a course for students that is based upon distance education delivery. The course aim is to enable students to gain insight into information phenomenon and

elements of IL that include planning, an information task, retrieving, organising, analysing and evaluating information, expository writing and to apply this knowledge and skills in completing information tasks (Underwood 2002).

3.12.6.1.3.3   University of KwaZulu-Natal (UKZN)

IL initiatives at the University of KwaZulu-Natal, formerly University of Natal, started in the early 1990s. The then Department of Information Studies in the Faculty of Social Science started offering IL programmes to undergraduate students in 1996 through a course called Introduction to Information Retrieval which comprised 30 lectures and 10 practicals on "library use skills" (Leach 1999:58). In order to embrace a broader course perspective and to be in line with the concept of IL as understood in local and international circles, the Information Studies Programme, formerly the Department of Information Studies, is now offering an elective information literacy module (Information Literacy 110) for undergraduate students. The course is designed to assist students to develop their skills in IL so that at the end of the programme they can:

- Understand the concept of information in relation to the information age.
- Understand the concept of information literacy and the typology of information skills
- Understand what is meant by an information organisation
- Develop an effective information search strategy to satisfy information needs.
- Acquire a sound knowledge of various information sources including print and electronic sources
- Acquire skills for independent identification, locating, retrieving and evaluating information.
- Acquire knowledge and skills to use information ethically.

Beside the course offered by the Information Studies Programme, the School of Law at Pietermaritzburg Campus, offers a standalone eight-credit IL course called 'Legal Research Writing and Reasoning'. This course is taught by librarians and is compulsory for all second year undergraduate law students and other students from other faculties opting for legal studies (Kuhn 2006). UKZN has also introduced a university wide

foundation programme called 'Academic Literacy' with IL as one of its modules (Maponya 2006).

3.12.6.1.3.4   University Cape Town

IL activities at the University of Cape Town started in the 1990s as part of INFOLIT project. A credit bearing course 'Information Tools and Skills' was first introduced for undergraduate students in 1996 in the Faculty of Humanities and has continued ever since (De Jager and Nassimbeni 2002:173). A generic course for honours degree students was introduced in 2001 in the Faculty of Humanities (De Jager and Nassimbeni 2002:173-174). All the courses were intended to provide students with transferable learning and information skills.

3.12.6.1.3.5   University of Pretoria

At the University of Pretoria IL initiatives started in 1998 when the university introduced a campus wide IL programme (Thompson 2000). This intiative began with the teaching of four modules within the Computers and Information Literacy (CIL) course namely Introduction to Computers, Word Processing using MsWord, Database and Spread sheet software of Microsoft Ecxel and Access. These three modules were taught by staff from Damelin Computer School (Thompson 2000). The fouth module, Information literacy was developed in collaboration with staff from the Departments of Information Science, Informatics and Computer Science (Thompson 2000). This module that consisted of six sections namely finding information, computerised databases, search strategies, Internet, evaluation of information and practical database searching as its content was developed in such a way that it combined theory and practice in order to allow students to acquire transferable skills (Thompson 2000).

According to Bothma (2006) the IL module is now compulsory for all first year undergraduate students. Currently about 6500 students are registerd for IL modules. The module is semester based, consisting of two hours of theory per week for 14 weeks plus two hours of practicals done by students in their own time. Staff in the Department of Information Science and Informatics teach this module and have produced a handbook

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for IL materials. Other materials such as WebCT-slides and practical exercises supplement the book (Bothma 2006). In addition, the Univerity of Pretorial Library through the year provides training to equip students with necessary IL knowledge and skills for conducting research and how to use various information sources (Univerity of Pretoria 2006).

3.12.6.2 Initiatives in other African countries

The University of Botswana is another good example of IL initiatives in Africa. Despite being offered in a sporadic and uncoordinated manner the University of Botswana Library has since the 1990s offered information use instructions in various guises, mainly through library orientation and bibliographic instruction (Ojedokun and Lumande 2005:19; Lumande, Ojedokun and Fidzani 2006). According to Yeboah (1999:145) non-formal unscheduled hands-on instruction for bibliographic searching of OPAC, CD-ROMs, the card catalogue and printed indexes were being offered by subject librarians in the early 1990s. At departmental level in 1994 the Department of Biological Sciences incorporated information skills as a course of instruction (Yeboah 1999:145) while the Department of Nursing integrated IL into the curriculum in 1995/1996 academic year (Roselle 1997). According to Lamusse (1994) as cited by Ojedokun and Lumande (2005:19) problems associated with students' ability to use the library and other information resources as perceived by departments as well as from students' own evaluation regarding the impact of orientation, necessitated a different approach to imparting IL skills. As a result IL was introduced in 2002 and integrated into the curriculum taught at level 100 to 300 within a university wide computer and information skills programme as General Education Course (GEC2) (Ojedokun and Lumande 2005:19).

This course has the following general features:
- Integrated into the curriculum
- Taught in partnership between librarians and staff from the computer section.
- It is a 2 credit programme
- Compulsory to all undergraduate students.

The course content is as shown in table 3.1

Table 3.1   ILS components within GEC-2 Programme-Botswana University

Course Code	Course Title	ILS component of GEC-2 programme course
GEC121	Computing and Information Skills Fundamentals I	Concept of information; organisation of information access tools; reference sources
GEC122	Computing and Information Skills Fundamentals II	Introduction to periodical literature; index and abstracts and full electronic databases; legal issues of information use; evaluation of information resources
GEC221	Information Management Skills	Searching CD-ROMs
GEC222	Problem-Solving with Spreadsheets	Searching subject gateways
GEC223	Web Application Skills	
GEC321	Multimedia Information Presentation Skills	Topic analysis; and organising and synthesising information for presentation

A recent development that has taken place at University of Botswana according to Lumande, Ojedokun and Fidzani (2006) is the introduction of e-learning for course management using WebCT software in which components of ILS have also been incorporated on a temporary basis until such a time as sufficient computers are available.

In other African countries various IL aspects that include surveys on IL activities and their challenges in some institutions are also reported. This includes Kavulya (2003) in Kenya, Entsua-Mensah (2001) in Ghana, Idiodi (2005) and Okocha (1994) in Nigeria.

3.13   Studies on information literacy in developing countries

Numerous studies on various IL aspects among students have been undertaken both in academic institutions and in countries that have advanced in IL practice mainly in the US, the UK, Australia, New Zealand and Canada. While not many studies have been undertaken in developing countries, a few examples can be cited. These studies include those by Bell (1990), Zondi (1991), De Jager (1997), INFOLIT (1998), Choonoo (1999), Bitso (2000), Webster (2000), De Jager and Nassimbeni (2003) and Isaac (2002). Of these studies the most significant study is the one that was undertaken in 1996 in the

Western Cape, South Africa under the INFOLIT Project. The researcher decided that as the current study is situated in an African country, to concentrate on studies undertaken in Africa so as to capture a more relevant situation for IL use and application in the Tanzanian situation. The need to assess situations according to local perspectives is also echoed by De Jager and Nassimbeni (2003:109) who note that while the literature on IL from the developed world might be relevant to local circumstances, developing countries have other situations that are not compatible with the developed world situation. The two authors give an example of students in tertiary education in developing countries who engage in the world of information with specific and often severe disadvantages that are not evident in the developed world.

The following section highlights some methodologies and findings on studies undertaken in Africa. However, it has to be noted that during the search for literature on information literacy in Africa the results in most cases gave information for studies undertaken in South Africa. This is an indication that in other African countries IL is not practised or if practised the information about IL in those countries is not yet formally published.

3.13.1 IL studies in Western Cape's and KwaZulu-Natal's tertiary education institutions

The INFOLIT Project study involved 5,629 students and two sets of focus group informants from libraries, academic development programmes, information-technology services and academics from five higher learning institutions namely University of Cape Town (UCT), University of Western Cape (UWC) University of Stellenbosch, Cape Technikon (CT) and Peninsula Technikon (PT). According to Sayed (1998:xv) the study had the following aims:

- To provide a systematic profile of IL that could be used by the five institutions to respond to global information changes.
- To audit students' IL abilities and needs that could be included in the existing programmes

- To compare IL programmes in other countries with reference to institutional policies and implementation strategies.
- To identify areas for strategic needs.

According to Sayed (1998:165) an important part of the study was concerned with ascertaining the competence of students in three areas of IL, namely reading and writing ability, library usage and computer competence. In summary the study revealed the following:

- About one third of all students had academic writing difficulties with black students (Africans, coloured and Indians) experiencing more difficulty compared to whites.
- Black students were less familiar with and less competent in computer skills
- Black students made extensive use of the library looking for information sources not prescribed.
- A great number of black students indicated more need for assistance in all aspects of information literacy compared to white students.
- Social difference such as economic well being contributed positively to gaining information literacy abilities and skills.
- In some instances differences in some IL abilities are based on gender differences. Female students were reported to having lower competence in computer usage.
- Certain teaching and learning approaches shape IL characteristics among learners. Thus disciplinary domains tend to cultivate more IL competence compared to others.

It can be generalised that the findings from this study reveal significant discrepancies between students from historically disadvantaged and historically white universities which reflects the past South African oppressive apartheid system that subjected the black population to poor social and economic services. It can also be inferred from this study that disadvantaged students in other countries like Tanzania and other developing countries which have had little or no access to good learning facilities such as books, libraries, computers and other learning resources, although not necessarily because of

social oppression, are also likely to experience the same deficiencies as their counterparts in South Africa.

De Jager's (1997) UCT-based study aimed at establishing objectively the existence of a correlation between students' academic performance and library use. Students' final examination results were studied and a sample of students was selected on the basis of highest and lowest scores in particular courses. The students' numbers were then matched with their library borrowing records for subjects that were assumed to require high library use, namely economics, history and sociology.

The study involved 240 students (60 students from each class of History 1, History III and Economics III and a combined Sociology group). The selected 60 records (students) consisted of the 20 highest scores in each class, 20 lowest scores, and 20 of a cluster around the mid point between the highest and lowest scores to test whether average students had used library material differently from the high and low scores. The results were then plotted to distinguish between the use of open shelf and short loan collection. The results of the study indicated that:

- There was a positive relationship between academic achievements and the use of open shelf library books
- Best students in all subjects except economics had used more open shelf books than both average and poor students.

At UCT Bitso (2000) conducted a study to investigate the levels of IL among undergraduate students with the aim of establishing whether patterns of library use, use of information sources and information evaluation had a positive influence on students' academic performance. The study mainly used closed questionnaire for data collection and it was initially intended to involve 660 students (260 male and 400 female) of various races, years of study, programme and age. However, only 184 questionnaires were returned.

The findings of the study revealed that students who scored 70% and above reported that they had received formal training in academic writing. The study further indicated that students who scored 70% and above and 60-69 % reported to be able to express themselves (in writing) better than those who scored 50-59% and < 50%. Further more, the study indicated that students who supplemented their prescribed textbooks and course packs with other reading material scored high marks compared to those who did not use supplementary reading materials. The study therefore concluded that there was a positive correlation between students' academic performance and positive IL competencies. The results from the study by Bitso (2000) were similar to results from a study by De Jager (1997).

Another study was conducted by De Jager and Nassimbeni (2003) to survey and determine measurable competences in students' IL at tertiary level educational institutions. This survey involved librarians from twelve institutions (seven universities and five technikons) who in one way or another were involved in IL. Out of 50 distributed questionnaires 32 (64%) respondents returned their questionnaires and the survey revealed the following:

- There was little explicit evidence of institutional strategic plans or policy statements that specifically acknowledged a responsibility for inculcating IL among students.
- In most institutions in South Africa there was cooperation between librarians and academic departments. Institutions with departments of library and information science/studies or communication cooperated with libraries to deliver IL.
- Stand-alone programmes were considered to be valuable at the initial stages or basic level of IL teaching. However, 81% of the respondents supported teaching IL in an integrated system.
- 94% of the respondents agreed that assessment is required after any training. Where a credit-earning course had been introduced they were being assessed using assignments, tests, portfolios or examinations.

- Core competencies are well embedded in the curriculum in South Africa. However, the study indicated that there were inadequate skills relating to electronic resources. The survey indicated that 60% of students were not computer literate while 70% were not library literate.

Besides this major study there have been other IL studies that have been undertaken. Zondi (1991) conducted a study at the University of Zululand in order to investigate the relationship between first year students' level of competence in the use of library and various resources in completion of independent academic tasks. This study involved 755 full time students across faculties. The study used a questionnaire for data collection regarding information seeking patterns and use of various information tools such as library catalogue, reference sources and periodical indexes. The study also used (with amendment) a Library Orientation test for College Freshmen developed in the US by D. Curtis, M. Gaver and E. Green to test the level of library skills in the following categories:

- Ability to use the catalogue
- Ability to use reference tools
- Ability to use indexing tools
- Knowledge and familiarity with library terms and abbreviations associated with the use of books and libraries.

The study revealed among others the following findings:

- Most students begin their tertiary education studies with inadequate information skills knowledge
- Poor ability to use various library resources. Most of the students were only familiar with using dictionaries, encyclopaedias and handbooks and relied mostly on reserve book collection and reading recommended by lecturers.
- The majority of first year students experienced problems with basic searches for information.
- The library instruction programme provided was not effective in imparting adequate library and information skills.

- Students' pre university library experience was not adequate to be transferable for use at university level.

The study also identified certain teaching and learning methods that in one way or another did not encourage independent learning. For example, the study pointed out that the practice used by lecturers to place books in the reserve collection did not motivate students to seek additional information by using alternative sources. However, it should be pointed out that placing certain reading materials in the reserve collection is often necessitated by the importance of a particular item and the need to allow particular materials to be accessible by as many students as possible for a specified time period.

3.13.2 Other studies: Botswana secondary schools

Isaac (2002) conducted a study involving form five students from four senior secondary schools in Gabarone, Botswana. The aim of the study was to establish the level of information literacy among those students in the four areas namely:

- Competence in translating problems into information needs
- Knowledge and ability to use different sources of information
- Ability to evaluate information
- Barriers to information literacy in senior secondary schools.

The study involved 214 (89.1%) from the population of 240 students who were expected to form the study sample. Self-administered questionnaires were used for data collection. The findings of the study revealed that students were weak in almost all aspects being studied. For example students did not possess sufficient competence in translating information problems into information needs. They were also found to be poor in the use of a variety of information sources. The study further indicated that in their schools the students were not getting any form of user education to help them acquire information skills. The study also showed that teachers were not engaging the students in activities and assignments that would make them find information and use library resources.

In general terms the studies discussed above have revealed some significant IL deficiencies among students. This confirms arguments stated earlier in this chapter that students in developing countries including African countries lack information skills and

therefore measures need to be taken in order to solve this problem. This situation therefore requires addressing objectively by librarians and other education stakeholders at various levels. In particular the challenge is to devise and put into practice information literacy programmes that would inculcate and maintain information literacy competence among students and other clientele as required in the information age.

3.14   Design of an effective IL programme

It has been expressed in this chapter (3.7.1) that in order to have an effective IL programme, that programme should be linked to students' academic curriculum, because it is in that way that students can find the meaning and importance attached to it. According to Orr, Appleton and Wallin (2001:457) IL classes delivered out of the curriculum context do not necessarily coincide with students' need for information thus students may tend not to place any value on such sessions. As such it is therefore important for educators to provide opportunities for students to learn information skills throughout the curriculum (Eisenberg, Lowe and Spitzer 2004:53). An IL programme linked to the curriculum is most suitable for inculcating and promoting among students norms of inquiry, problem solving and lifelong learning.

An IL programme that fulfils the above mentioned values requires a collaborative partnership among teaching staff, librarians and administrators and "it must be able to encourage students' engagement in using a wide range of information sources to expand their knowledge, ask informed questions and critical thinking for self directed learning" (Orr, Appleton and Wallin 2001:457). An effective IL programme should also inculcate among students both technical skills and information competencies that would allow students to access and employ a wide range of electronic and other information sources (De Jager and Nassimbeni 2003:108). These two authors suggests further that in order to achieve the best practices for inculcating IL skills, IL programmes should take into consideration and encompass high and lower order skills as analysed in Bloom's Taxonomy of educational objectives. The Bloom's Taxonomy of educational objectives requires that students master the cognitive skills of the lower level of each knowledge domain before mastering the higher order skills. Based on Bloom's Taxonomy, De Jager

and Nassimbeni (2003:110) developed twenty-one orientation skills that are required for IL. These skills are arranged in three main stages namely orientation, interaction and internalisation as indicated below:

Orientation

1. *To recognize a need for information*
2. *To define a topic as a preliminary step in the search for information*
3. *To select the main concepts in a topic*
4. *To identify keywords to search for information on a topic*
5. *To understand that a range of information sources is needed to research a topic*

Interaction

6. *To know that general reference sources may be used to gain a broad understanding of a topic*
7. *To know that different kinds of information will be found in different kinds of sources*
8. *To be able to choose the most appropriate resources; both print and electronic*
9. *To be able to distinguish between catalogues, indexes, online databases and web resources*
10. *To be able to locate and access information from different resources*
11. *To know how to formulate search strategies*
12. *To be able to construct search statements*
13. *To use Boolean logic*
14. *To know how search engines work*
15. *To quote and cite others' work correctly*
16. *To know about issues such as copyright and plagiarism*
17. *To know about issues such as currency, bias and authority*

Internalisation

18. *To be able to compare and evaluate information from different resources*
19. *To be able to organize, use and communicate information*
20. *To produce and present an organized piece of work*
21. *To synthesize and build new knowledge based upon existing information*

According to De Jager and Nassimbeni (2003:110) in the list above, 1 - 5 are the lower order orientation skills, which enable students to situate themselves in the world of

information; 6 - 17 are intermediate level skills which demand interaction with information resources and could vary significantly from discipline to discipline. The higher order skills, abilities and knowledge (18 - 21) require internalisation of what has been learnt and will not be adequately internalised without a firm grasp of the preceding steps.

From this list De Jager and Nassimbeni recommend that together with other aspects drawn from a document by Kirk (2001), the Best Practices Initiative developed as part of the ACRL document, a good curriculum can be developed. The document by Kirk (2001) points out that an effective IL programme should demonstrate the following characteristics:

1. *A mission statement considering anticipated contributions & benefits*
2. *Goals & objectives taking into account sound pedagogical practice*
3. *Result from careful planning at programme, curriculum & institutional levels*
4. *Demonstrate support from both administration & institution*
5. *Articulate with the curriculum with emphasis on contextual learning*
6. *Result from collaboration between academic & library staff*
7. *Pedagogy: multi-disciplinary approach supporting student-centred learning*
8. *Adequate staff with appropriate expertise*
9. *Publicity & outreach*
10. *Assessment fully integrated*

Based on the measure of consensus achieved from the survey De Jager and Nassimbeni (2003) propose that the main components of a basic information literacy curriculum should actively involve students with the following (*not necessarily consecutive*) steps and activities:

Orientation:
- *Identifying a research topic or an information need*
- *Defining the topic, ensuring a manageable focus*
- *Exploring general information sources to become familiar with the topic*
- *Selecting main concepts & key terms*
- *Interaction: Specific skills to be taught & mastered:*
- *Choosing a range of most appropriate and subject specific information sources, e.g.:*

    o *Library catalogues; Encyclopedias; Indexes: print and online*
    o *Bibliographies; Monographs; Journals;*
    o *Electronic databases; World Wide Web resources*

- *Constructing search statements; using Boolean logic where appropriate*
- *Formulating strategies appropriate for searching the World Wide Web*
- *Selecting information that is at the right level and fulfils the information need*
- *Maintaining a list of information sources used*
- *Quoting and citing correctly*
- *Understanding copyright and avoiding plagiarism*
- *Understanding the importance of currency and authority; recognizing bias*

Internalization:

- *Comparing and evaluating information from different resources*
- *Organizing, using and communicating information*
- *Producing and presenting an organized piece of work*
- *Synthesizing and building new knowledge*

3.15   Summary

This chapter has discussed the importance of IL in our society that is predominantly influenced by IT. It has also been demonstrated that in academic institutions IL is of critical importance because, besides equipping students with knowledge and skills that enable them to excel in their academic performance, IL empowers them with life long learning skills that can be used during their post graduation life.

Worldwide the value and importance of IL is increasingly being recognised. Various countries especially in the US, the UK and Australia are at different levels of IL development and their institutions are at diverse levels of IL practices and they have opted for different approaches to conducting and delivering IL programmes. However, the general trend that is influencing IL practices especially in universities and other higher learning institutions is a move towards the infusion of IL to the education system and, in particular, integrating it with the curriculum.

Through the search for literature it was established that despite the importance of IL, in developing countries including African countries there is still much which needs to be done in terms of IL, as most of the initiatives for IL have mainly been undertaken in developed countries. In Africa however, South Africa has achieved significant steps

towards IL development. Although within South Africa the initiatives have been concentrated in the Western Cape Province IL initiatives are found in other provinces mainly in the education sector. Other serious IL initiatives have also begun to emerge in other African countries such as Botswana.

It has also been shown in this chapter that in order to implement effective IL programmes in academic institutions, IL should be incorporated into the mainstream curriculum. Collaboration among all institution stakeholders, in particular, the collaboration between librarians and the teaching staff is crucial, and this has also been cited as an important issue to be considered. However, the chapter has revealed that in order for this cooperation to succeed the inherent challenges facing IL should be addressed.

Chapter Four

Methodology

4.1   Introduction

The purpose of this study was to investigate the status and practices of IL in Tanzanian Universities regarding the facilitating and enhancing of teaching and learning. In addition the study intended to establish the basis for strategies that could be adopted to introduce or develop effective IL programmes in higher learning institutions in Tanzania.

The above intentions were considered on the understanding that advancements that have been brought about by the advent of the Internet and other electronic and digital information resources and the general information explosion have brought significant developments in the way that information can be handled in general. This development was regarded as a challenge which faced information users who needed to become competent in handling and using information resources efficiently and effectively in meeting their information needs. It is this challenge that makes IL an important aspect needed by every individual in the information age.

In the information age, every individual needs to be information literate in such a way he/she can acquire skills to access, retrieve, evaluate and use information effectively in solving his/her problems. These skills are particularly important in higher learning institutions for students and staff. They are skills that need to be taught and imparted to students in order to make them independent and confident information users.

While it was assumed that higher learning institutions in Tanzania, including the four universities under study, are in one way or another involved in practicing some forms of instruction for their students to become effective information users, this study was considered significant because there was no available evidence of a study on IL in higher education institutions in Tanzania from which data on the status and practices on IL could be generated. This study was thus also undertaken in order to fill this gap.

4.2 Research design

A research design is defined as a plan or structured framework of how one intends to conduct the research process in order to solve the research problem (Babbie and Mouton 2001:104). On similar lines Durrheim (1999:29) defines a research design as a strategic framework for action that serves as a bridge between research questions and execution or implementation of the research.

Given the purpose and objectives of the study, the survey method was considered to be the most appropriate for undertaking this study. Busha and Harter (1980:54) state that a survey allows the investigator to gather information about the target populations without undertaking a complete enumeration. In this instance sampling was applied for the different population groups used in the study as indicated under section 4.3. The survey was also used because if well designed, this method is capable of collecting information without the researcher unduly influencing responses. A predominantly quantitative approach was used for the study. The basic quantitative research purposes are to describe and compare attributes. Each of these purposes is fulfilled through the assignment of numerical values to variables and the mathematical analysis of those values (Hittleman and Simons 2001:27). Further to this, quantitative research is predicated on the belief that variables should be mathematically measured. This approach stresses that variables should be repeatedly verified (Hittleman and Simons 2001:27).

4.2.1 Data collection instruments

The study used the self-administered questionnaire as the main data collection instrument. The questionnaires were supplemented by face-to-face interviews in the case of librarians and academic staff populations. In addition, unstructured observation was used as a supplementary instrument for data collection.

Before the construction and later the administration of the questionnaire, a literature review on a number of studies related to this one were carried out in order to asses the methodologies that were used by other researchers so as to ascertain whether they could be applied to this study and be adapted where possible. Most of the studies consulted

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dealt with information literacy or other programmes such as user education or library orientation/instruction focusing on specific information user groups within specified institutional settings. Those assessed included studies by Ntsala (1994), Zondi (1991) and Isaac (2002). Other studies included those of Hepworth (1999), Choonoo (1999) and Webster (2000) who have worked on the aspect of integrating or mainstreaming IL and user education in the undergraduate curriculum. Another study by Bell (1990) which examined the aspects of designing and evaluating user education in academic libraries was also drawn on.

Almost all of these studies used quantitative research methods in their studies. Studies by Zondi (1991) Hepworth (1999), Webster (2000) and Isaac (2002) used survey research techniques whereby questionnaires, interviews and observations were used as their main data collection instruments. However, the studies by Hepworth and Choonoo used additional techniques to study the students. In his study Hepworth (1999), instead of using direct questionnaires and interviews alone, used task analysis and talk-through as well. In the task analysis technique students were asked questions about what they had to do to complete a specific task and how they intended to do it. This enabled the researcher to capture insights into students' research processes. On the other hand, a talk-through involves respondents verbalizing their thoughts while undertaking a task. This helps to understand the cognitive, process and problems undergone by students. These two techniques can be very useful when collecting data when specific tasks to be undertaken by the respondent have been set. In a study by Choonoo (1999), in addition to questionnaire and observations a quasi-experimental method was used for two groups of students who were understudied in the use of concept-based teaching and procedural teaching. However, given the nature of the current study the two techniques used by Hepworth (1999) and the one used by Choonoo (1999) that has been discussed above were not used. The techniques used by these researchers would be more appropriate for a study set specifically to focus on students' skills.

In general while the proposed study looks at IL as a general educational activity at institutional levels, methods for studies discussed above were considered to be relevant

and useful because, besides discussing some pertinent issues related to the proposed study, those studies provided some insight on how such a study can be conducted.

4.2.1.1 The questionnaire

Strangor (1998:8) defines a questionnaire as a set of fixed-format questions that is completed by respondents at their own pace, often without any supervision. There are two basic types of questions, open-ended or unstructured questions and fixed or structured questions. Open-ended or unstructured questions are designed to permit free responses from respondents while fixed or structured questions are designed to limit the response to stated alternatives (Powell 1997:93-94). In this study both open-ended and structured questions were used. Each group of respondents (librarian, teaching staff and students) had a separate questionnaire in order to obtain responses for specific aspects falling within their experiences that corresponded to the objectives and research questions of the study. However, some questions cut across all three groups of respondents.

The choice of the questionnaire as the main data collection instrument was based on the advantages it entailed.

4.2.1.1.1 Advantages and disadvantages of the questionnaire

Both types of questions have their advantages and disadvantages. Open-ended questions have the advantage of allowing respondents to give free responses as opposed to limited specific alternatives (Powell 1997:93). Advantages of structured questions include reliability, standardization, simplicity, ease of administration and a clearly understandable format for the respondents.

On the other hand structured questions have their disadvantages in that there is a possibility of respondents selecting inaccurate answers as a result of a limited set of possible replies. For this reason, another "please specify" option is usually included. At the same time structured questions can lead to an opinion statement being offered when a respondent has no answer on an issue (Powell 1997:95). The disadvantage of an open-ended question is that, because of the unlimited possibilities of responses, the answers

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given by respondents are difficult to categorise and analyse. Commenting on open-ended questions, Strangor (1998:98) points out that the task of tabulating, analysing and summarising the open questionnaire tends to be difficult and time consuming and for that reason some sources do not recommend it as a popular instrument.

4.2.1.1.2   Design of the questionnaire

In this study, combinations of open-ended and fixed-response questions were used. This combination was opted for in order to enable the researcher to gather various kinds of information including factual, opinions, attitudes, self-perceptions, beliefs and evaluative thinking. Powell (1997) recommends this kind of combination on the grounds that they complement each other. In the same vein Line (1982:62), points out that the use of structured and unstructured questions is recommended because the combination increases the reliability of responses. According to Busha and Harter (1980) and Powell (1997) the advantages of using the questionnaire include:

- Respondents can give frank responses because answers are anonymous.
- Can be administered to numerous respondents thus producing a large amount of data in a relatively short time.
- Ability to provide quantitative data when constructed to do so.
- Elimination of variations in the questioning process.

Basically the questionnaire was chosen as the main data collection instrument because of the advantages it holds for this particular study. The design of the questionnaires was mainly guided by the five objectives and five research questions.

These research questions are:

(i)   What is the state of library instruction with respect to:

- Type of instruction
- Methods of delivery and its effectiveness
- Staff involved in teaching IL (are library staff and teaching staff involved in teaching IL?)

(ii)   What are the teaching practices or methods that are used by lecturers promoting IL knowledge and skills among students?

(iii)   What is the level or state of IL competence among students in relation to:

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- Information searching skills using electronic and non electronic sources of information?
- Skills and levels of literacy in the use of various computer applications?
- Knowledge and skills in information evaluation?
- Knowledge and skills in information organisation?

(iv)   What barriers influence effective implementation of IL programmes?
- University policies
- Availability of resources
- Attitudes and behaviours among staff and students
- Knowledge, skills and competence among staff in teaching IL

(vi)   What strategies and what models can be adopted for the effective implementation of IL programmes?

4.2.1.1.3   Structure of the questionnaire

The questionnaires were divided into three categories, one each for every group of the population of the study namely, librarians, teaching staff and students (See Appendices 6,7 and 8).The details of the questionnaires were as follows:

4.2.1.1.3.1   Questionnaire for librarians

Section A: Item 1 (1.1-1.4)

This section intended to provide the researcher with biographical data about the librarians. The information asked was about rank, gender, academic qualifications and work experience.

Section B: Items 2-11

This section consisted of questions asking about the status of IL in terms of the practices that are in place in the universities under study. The main aspects that were asked about included those features of IL that are taught, the systems and methods of IL teaching, the staff involved in IL activities, their level of involvement and the evaluation system that was in place.

Section C: Items 12-24
This section probed views and opinions of the librarians on how best IL could be effectively institutionalised. Specifically the section probed views about methods that could be used, which staff should be responsible for teaching IL and how best could IL be fitted into the mainstream university curriculum. The section also had questions that sought to identify barriers that in one way or another were considered to impede IL activities in those universities.

4.2.1.1.3.2   Questionnaire for teaching staff

Section A: Item 1 (1.1-1.6)
This section intended to provide the researcher with the biographical data of the teaching staff. The question asked about rank, faculty and departmental affiliation, academic qualifications, area of teaching specialization and work experience.

Section B: Items 2-14
This section had questions asking the views of the teaching staff regarding students' competence in using and applying information from a variety of information resources in undertaking their assignments and studies in general. There were also questions about views on the place and importance of IL for students' learning and whether systems or mechanisms were in place for ensuring that the students were engaged in activities that would make them acquire and practice aspects of IL skills for their studies. Other questions asked for an evaluation as to whether or not the students were information literate and if there were differences in IL skills among students of different levels.

Section C: Items 15-27
Questions in this section were intended to collect opinions from teaching staff regarding the best way to institutionalise IL. Questions asked included whether IL is suited to being integrated in the university curriculum or should be taught as a stand-alone programme. Should IL be examinable and credit earning or not? Other questions asked about lecturers' willingness to be involved in designing IL curriculum and teaching it.

4.2.1.1.3.3 Questionnaire for students

Section A: Item 1 (1.1-1.6)

Like the other section "A" questions for librarians and teaching staff, this section asked for students' biographical information. The information required, included programmes of study, faculty, year /semester of study and whether the respondents were mature students or newcomers direct from school.

Section B: Items 2-8

The questions in this section sought to obtain information regarding, the students' pre-university background in using library and information resources in general. These questions included for example, whether the school they last attended had libraries, what was the physical arrangement and conditions of those libraries, and how the libraries were being managed, including the presence of qualified staff for running those libraries.

Section C: Items 9-23

This section had questions probing the status of IL skills among students. Questions asked include those seeking to know about skills and competence in using various electronic and non-electronic information resources and frequency for their usage. Other questions sought information on their competence in using various computer software programmes. These include students' perceptions of the information explosion and how this phenomenon affects them in their information search processes hence the need for them to be taught various techniques that would help them to become more effective information users. Ethical issues related to information use such as awareness of copyright rules and plagiarism were also probed in this section.

Section D: Items 24-34

Questions under this section sought to solicit students' views on how best IL could be institutionalised. Such questions included those asking whether or not the library had an effective system of imparting information skills to library users and how best IL could be incorporated in the university curriculum. Issues like IL being an examinable credit earning module and who the appropriate staff for teaching IL were also asked in this section. A question requiring self-evaluation in order to ascertain the level of information literacy was also asked.

4.2.1.1.4 Pre-testing of the research instrument - questionnaires

Whenever questions are asked respondents can answer them either correctly and without difficulty or vice versa. Some of the misunderstandings or misinterpretations of the questions can be due to lack of clarity due to poor wording, illogical progression of the questions and so on. Because such problems may arise, some authors like Balian (1982), Bell (1993), Singleton et al. (1993) and Powell (1997) recommend the use of pre-testing or trial runs of the questions.

Pre-testing or trial-runs are recommended in order to give the researcher an opportunity to identify questions that in one way or another may lead to misunderstandings or signals that may not give the needed information (Powell1997). It is further recommended to carry out interviews with some of the pre-test participants as part of the pre-testing in order to get an opportunity for respondents to point out problem questions, poor instructions and so on and to give their general reactions to the instrument (Powell 1997:105).

In order to come up with appropriate and suitable instruments for data gathering, drafts of the research instruments (Questionnaire) were discussed with supervisors at the University of KwaZulu-Natal and at SUA with librarians. They were then pre-tested at Mzumbe University on all groups of the population of the study (librarians, teaching staff and students). Busha and Harter (1980:58) and Singleton et al. (1993) recommend doing pre-testing among respondents who are as similar to the target population as possible.

Pre-testing of the research instruments at Mzumbe University was considered appropriate because Mzumbe University was not involved in the study but at the same time all respondents in this university had similar characteristics and backgrounds to those who were to be used in the actual study. The use of Mzumbe University was also considered appropriate in order to avoid bias that could be developed by respondents who have seen the questionnaire during pre-testing.

4.2.1.2 Observation

Observation involves the systematic observation, recording, description, analysis and interpretation of people's behaviour (Saunders, Lewis and Thornhill 2003: 221). In other words observation is a way of watching and listening to an interaction or phenomenon as it takes place (Kumar 1999:105). According to Busha and Harter (1980:147) the term observation is used to indicate that the object or subject of an investigation is being subjected to close, usually visual, surveillance. According to Kumar (1999), Babbie and Mouton (2001) and Saunders, Lewis and Thornhill (2003) there are two main types of observation namely participative and non-participative. In non-participative observation the researcher does not get involved in the group but he/she remains passive observer, watching and listening to the group's activities. On the other hand in participative observation the researcher participates fully in the activities of subjects and becomes a member of the group under observation (Saunders, Lewis and Thornhill 2003:222).

Observation can be structured or non-structured. Structured observation involves the deliberate, systematic viewing of critical aspects of an operational process or the behaviour of particular groups of subjects (Busha and Harter 1980:150). Saunders, Lewis and Thornhill (2003: 221) point out that structured observation is qualitative and is more concerned with the frequency of the actions under observation.

Because in this study observation was not intended to be used as a primary instrument for data collection, unstructured observation was used as a supplementary instrument for data collection in order to complement the questionnaires (See Appendix 9). By observation, the researcher is able to uncover patterns of behaviour that reflect otherwise hidden attitudes or views unconsciously affecting the participant (Gorman and Clayton 1997:44). Observation was therefore used to collect information such as behaviours or actions from library users that indicated certain tendencies whether positive or negative towards IL. Observation was also employed to look for other characteristics within libraries, such as guides, posters and signs that are intended to assist library users.

4.2.1.3   Semi-structured interview

Semi-structured interviews were developed and administered to Deputy Vice Chancellors, Faculty Deans and Library Directors/Heads after the main data collection had been completed using questionnaires (See Appendices 10 and 11). Interviews were used as a follow up for getting clarification for some issues that arose as a result of data collected from observations and the questionnaires and hence represented a qualitative dimension in the study.

4.3   Populations of the study

A study population according to Babbie and Mouton (2001:174) is an aggregate of the elements from which the sample is selected. The study population is also defined by Busha and Harter (1980:56) as any set of persons or objects that possesses at least one common characteristic. Busha and Harter further point out that the population can be very large or small, depending upon the size of the group of persons or objects from which the researcher plans to make inference. Given the context of the study, that is IL in four Tanzanian universities, the populations of the study included groups of people in those institutions who in various ways were directly involved in IL namely, the librarians, students and academic teaching staff. Since the total population in the four universities under study was large, it was necessary to select an appropriate sampling procedure that would allow the selection of a manageable sample.

4.4   Population sampling

According to Babbie and Mouton (2001:164) a critical part of social research is the decision about what to observe. Sampling is thus the process of selecting samples or elements for observations. Sampling is an important aspect of enquiry because it is from sampling that a researcher can make judgements about various aspects on the basis of fragmentary evidence and it pervades all aspects of research and crops up in various forms regardless of the research strategy or investigatory technique used (Robson 2002:260). According to Babbie and Mouton (2001:166) there are two types of sampling: probability and non-probability sampling.

Non-probability sampling is often used in situations where probability sampling cannot be applied in the sense that it is not possible to have the entire list of the population to be studied from which the sample can be chosen; this is mainly in large-scale social surveys. Some non-probability sampling techniques include reliance on available subjects, purposeful or judgemental sampling, snowball sampling and quota sampling.

Probability sampling involves the selection of a "random sample" from a list containing the names of every one in the population. In probability sampling it is possible to specify the probability that any person (or other unit on which the survey is based) will be included in the sample (Robson 2002:264). Babbie and Mouton (2001:166) observe that probability sampling remains the primary method for selecting large representative samples for social science research; however, many research situations often make probability sampling impossible or inappropriate. Probability sampling involves the following sampling techniques; simple random sampling, systematic sampling, stratified random sampling and cluster sampling.

4.4.1 Population sample size

The population sample of the study is determined by the nature of the study. In their analysis of population sampling, Saunders, Lewis and Thornhill (2000:155) point out that generalisations about populations from data collected using probability sampling are based on probability and that in terms of sample size they say the larger the sample size the lower the likely error in generalising to the population. However, Glazier and Powell (1992) contend that the size of sample of the study should neither be excessively large nor too small. A sample that is too large according to Cochran (1963:71) could result in a waste of resources while according to Ngulube (2005:134) a sample that is too small diminishes the utility of the results. On the other hand Kumar (2005:181) is of the view that the main determinant factor for a sample size is the purpose of undertaking the research and the level of accuracy required in the results. Thus an optimal sample is one that fulfils the requirements of efficiency, representativeness, reliability and flexibility. Powell (1993:73) outlines four general criteria for determining the sample size.

(i)   The degree of precision required between the sample and the population

quoted by Saunders, Lewis and Thornhill (2000:153) the influence of a single extreme case on a subsequent statistical analysis is more pronounced than for a larger sample. Because the number of librarians for each library in all universities under study was less than 50 it was sensible that all librarians were involved in the study. It is important to note here that the librarians involved in the study were those with a minimum qualification of an undergraduate degree. Table 4.1 indicates the distribution of librarians involved in the study from each university.

Table 4.1   Librarians involved in the study from each university

University	Number	Sample
SUA	9	9
UDSM	14	14
TUMAINI	Nil	Nil
SAUT	2	2

4.4.2.5   Sampling the populations of academic staff and students

4.4.2.5.1   Sampling of the student population

The student population sample was drawn from undergraduate students from all years of study. The selection of undergraduates was based on the fact that they are the majority in the universities and compared to postgraduates are likely to experience a relatively greater information literacy deficiency. Using this undergraduate population for the study was considered a good starting point upon which to base a foundation for IL to be established. Undergraduate students were stratified according to their faculties and years of study. In each stratified group a selection of representatives was carried out using a sampling frame.

4.4.2.5.1.1   Students' sampling procedure

A systematic sampling was used to sample the students. According to Saunders, Lewis and Thornhill (2000:162) and Babbie and Mouton (2001: 190) systematic sampling involves selecting the sample at a regular interval from the sampling frame. This process is undertaken under the following procedure:

(i)   Numbering each case in the sampling frame with a unique number, the first case numbered 0, the second 1 and so on.

(ii)   Selecting the first case using a random number, normally by closing eyes.

(iii) Calculating that every kth element in the total list is chosen for inclusion in the sample.

This selection is made in a total list of 10 000 elements for a sample of 1000 by selecting every tenth element.

For every university involved in the study a list of names of all undergraduate students in each year of study in every faculty was requested from relevant administrative officers of each university that dealt with admissions/academic affairs. For example at SUA and UDSM academic affairs including student admission and academic staff matters for staff falls under the Deputy Vice Chancellor (DVC) Academics and Deputy Vice Chancellor (DVC) Administration and Finance, respectively. At SAUT and IUCO academic officers were involved in this exercise. Lists of names obtained were arranged alphabetically and numbered with a unique number to make a sampling frame. A sampling frame was used to sample the population for each faculty. Tables 4.2-4.5 show the student population and population sample for each university.

Table 4. 2   Student sampling - SAUT

Faculty	Population	Population per year of study			Population sample per faculty	Population sample per year of study		
		1st	2nd	3rd		1st	2nd	3rd
Business administration	187 (53%)	123	40	24	99	65 (66%)	21 (21%)	13 (13%)
Humanities and Communication	168 (47%)	86	46	36	87	44 (51%)	24 (27%)	19 (22%)
Total Population	355							
University Population Sample	186							

Table 4. 3   Student sampling - Iringa University College

Faculty population		Population per year of study				Population sample per faculty	Population sample per year of study			
		1st	2nd	3rd	4th		1st	2nd	3rd	4th
Arts and Social Science	151 (24%)	61	42	48		58	23 (40%)	16 (28%)	19 (32%)	
Business Administration	143 (23%)	57	46	40		55	22 (40%)	18 (32%)	15 (28%)	
Theology	22 (3%)	3	5	2	12	7	1 (14%)	1 (23%)	1 (9%)	4 (54%)
Law	316 (50%)	143	87	86		120	54 (45%)	34 (28%)	32 (27%)	
Total Population=632										
Population Sample=240										

Table 4.4   Student sampling – SUA

Faculty	Population	Population per year of study					Population sample per faculty	Population sample per year of study				
		1st	2nd	3rd	4th	5th		1st	2nd	3rd	4th	5th
Agriculture	1533 (69%)	518	521	470	24		225	74 (33%)	76 (34%)	70 (31%)	5 (2%)	
Forestry and Nature Conservation	313 (14%)	102	102	109			46	15 (33%)	15 (33%)	16 (34%)		
Veterinary Medicine	151 (7%)	30	27	32	23	39	23	5 (20%)	4 (18%)	5 (21%)	3 (15%)	6 (26%)
Science	225 (10%)	107	63	55			33	16 (48%)	9 (28%)	8 (24%)		
Total Population	2222 (100%)	757	713	666	47	39		112	105	97	8	6
Population Sample	327											

Table 4. 5 Student sampling – UDSM

Faculty	Population	Population per year of study				Population sample per faculty	Population sample per year of study			
		1st	2nd	3rd	4th		1st	2nd	3rd	4th
Aquatic Science	43 (0.4%)	31	12			-	0	0		
Arts & Social Science	3481 (36%)	1260	1001	1045	175	133	48 (36%)	38 (29%)	40 (30%)	7 (5%)
Civil & Built Materials	403 (4%)	132	94	89	88	15	5 (33%)	4 (23%)	3 (22%)	3 (22%)
Commerce	1386 (14%)	550	424	409	3	52	21 (40%)	16 (31%)	15 (29%)	
Chemical and chem. Engineering	504 (5%)	170	116	101	117	19	6 (31.5%)	5 (26.3%)	4 (21%)	4 (21%)
Education	1253 (13%)	396	290	344	223	48	15 (31%)	11 (23%)	13 (27%)	9 (18%)
Electrical & Computer Science	373 (4%)	118	105	80	70	15	5 (32%)	4 (28%)	3 (21%)	3 (19%)
IMCJ	96 (1%)	96				4	4 (100%)			
Law	1028 (11%)	309	243	258	218	41	12 (30%)	10 (24%)	10 (25%)	9 (21%)
Science	1119 (12%)	408	355	356		44	16 (36%)	14 (32%)	14 (32%)	
Total Population	9686									
Population Sample	370									

4.4.2.5.2 Sampling the teaching staff population

The population sample for teaching staff was drawn from lecturers who teach the undergraduate students from all faculties. The selection of lecturers teaching undergraduates was intended to get their views and experience regarding aspects of information literacy competence among the students they taught and to get their opinion on how IL could effectively be used in teaching and learning.

4.4.2.5.2.1 Sampling procedure for teaching staff

A similar procedure used to obtain and determine the sampling frame and selection of the sample for students as discussed under 4.4.2.5.1.1 was also applied for teaching staff. However the list of the teaching staff obtained was scrutinised in order to omit staff who were not on campus for various reasons such as their own studies and sabbatical leave. For IUCO and SAUT all members of the teaching staff were included in the study because their number was less or equal to forty. Tables 4.6 - 4.8 indicate the population and population sample of the teaching staff in each university.

Table 4.8   **Population size and population sample size of the teaching staff -
Iringa University College and SAUT**

University	Number	Sample
IUCO	35	35
SAUT	40	40

4.5   Administration of research instruments

4.5.1   Research permission

The administration of the research instruments began by requesting an official letter from the Vice Chancellor SUA that introduced the researcher to the administration of the Mzumbe University, UDSM, Tumaini and SAUT universities. The letter requested permission for the researcher to conduct his study in those universities. Copies of the letter from the Vice Chancellor were then attached to copies of an introductory letter from the Director of Information Studies Programme, University of KwaZulu-Natal (UKZN), and a covering letter from the researcher (See Appendices 13-18).

The letters were then presented to the relevant officer when the researcher made visits to the universities in order to conduct his study. The first visit was made to UDSM on 19th January 2005. The researcher obtained lists of students, teaching staff and librarians and used those lists to prepare the sampling frames. Arrangements for getting the research assistants were also made. The next visit was made to Iringa University College on the 13th February for the same purpose as for UDSM. The researcher then travelled to Mwanza on the 25th February 2005 to do research work at SAUT. The journey from Morogoro where the researcher was stationed to Mwanza takes three days by train.

4.5.2   Pre-testing of the questionnaires

The pre-testing of the questionnaires was conducted at Mzumbe University during the third week of December 2004. The pre-testing involved eight respondents from each category of the respondents (librarians, teaching staff and students). All questionnaires were returned and were studied in order to find out if there was need to make changes. Some changes were proposed; those changes were then sent to the supervisors at UKZN

for comments. After receiving the comments from the supervisors the changes were incorporated into the final version of the questionnaires. The changes that were made were mainly typographical but included the rearrangement of a few questions in order to improve the sequence of questions. The questionnaires were then printed and a copy of a questionnaire was attached to an introduction letter from the Director of Information Studies Programme and a letter from the researcher.

4.5.3 Administering the questionnaire

The administration of questionnaires started at SUA on 10th February 2005. Two research assistants were identified and were assigned the responsiblity for the distribution and collection of the questionnaires. The questionnaires were then administered at IUCO on 15th February 2005. At IUCO one research assistant was assigned the responsibility of collecting the completed questionnaire. At UDSM the questionnaires were administered on 18th February 2005. Given the wide area of the campus as well as the large number of both students and teaching staff, at UDSM it was felt necessary to have three research assistants so that it was easier to distribute and collect the questionnaires. At SAUT the administration of the questionnaires begun on 1st March 2005, one research assistant was responsible for the distribution and collection of the questionnaires.

4.5.4 Return of the questionnaires

In each university all research assistants were given twenty days to collect the questionnaire. This time was considered to be enough to allow the respondents to complete the questionnaires and for the research assistants to collect them. However, the return of the questionnaires exercise took longer then planned because the respondents were slow in filling in and giving back the questionnaires to the research assistants. Because of this problem, the researcher had to make a number of follow-up visits at UDSM and IUCO in an attempt to speed up the exercise. During those visits the researcher collected the questionnaires that had already been handed back.

Because of the distance from Morogoro to Mwanza the researcher could not make a follow up visit to SAUT, instead he used a telephone call to communicate with his

research assistant in order to find out what was going on. The collected questionnaires were mailed back to the researcher by Express Mail Service (EMS). At SUA the student strike that took place a few days after the questionnaires were administered also contributed to the delay of the return of the questionnaires on the side of the students. Following that strike, first and second year students were suspended from studies for three weeks so they had to go home; when they returned most of them claimed to have lost or misplaced their questionnaires. The researcher was therefore forced to reprint and redistribute the questionnaire to some of the students. To some extent the return rate of the questionnaire was affected by these incidents. By the end of June 2005 the researcher closed the data collection exercise, as there was little hope of more questionnaires being returned. However, by the time that exercise was concluded the number of returned questionnaires had reached an acceptable rate. According to Babbie and Mouton (2001:261) a high response rate leads to less chance of a significant response bias than a low rate. The two authors therefore point out that 50% response rate is adequate for analysis and reporting while 60% is good and 70% is very good. Table 4.9 indicates the return rate of the questionnaires for each category of the respondents.

Table 4.9 Return rate of the questionnaires

Institution	Students			Lecturers			Librarians		
	N	PSMP	RTN	N	PSMP	RTN	N	PSMP	RTN
SUA	2222	327	188 (57.4%)	211	136	96 (70.5%)	9	9	9 (100%)
UDSM	9686	370	211 (57%)	498	217	116 (53.4%)	14	14	14 (100%)
IUCO	632	240	163 (67.9%)	35	35	21 (60%)		Nil	Nil
SAUT	355	186	102 (54.8%)	40	40	25 (62.5%)	2	2	2 (100%)
Total	12895	1123	664 (59.1%)	784	428	258 (60.2%)	25	25	25 (100%)

Key:
(i)   N   = Population in each University
(ii)   PSMP = Population sample and number of distributed questionnaire
(iii)   RTN = Returned questionnaires

As it can be seen from table 4.9 above the lowest return rate for students was 54.8% from SAUT while the highest return rate was 67.9% from IUCO. For lecturers the lowest return rate was 53.4% from UDSM while the highest return rate was 70% from SUA. The overall average return rate was 59.1% for students, 60.2% for lecturers and 100% for librarians. In this regard the average return rate for all categories of respondents was above the 50% recommended by Babbie and Mouton (2001) as adequate for reporting and analysis.

4.5.5   Administering the observation schedule

Observation was conducted in libraries and was used to collect information about behaviour or actions of library users that portrayed certain tendencies in relation to IL. Observation was also employed to look for features within the library such as guides, posters, leaflets and signs as well as examining the general library environment, including resources. In some cases on the spot questions were posed to librarians and students in order to verify some of the observation.

4.5.6   Administering the interviews

As pointed out under 4.2.13 semi-structured interviews were developed after the main data were collected from questionnaires. These interviews were undertaken with Deputy Vice Chancellors, Faculty Deans and Library Directors/Head. The interview questions were mostly based on the findings from the questionnaires (See Appendices 10 and 11).

Before conducting the interviews face to face communication and a telephone call were made between the researcher and the interviewees and, in some instances, with their secretaries in order to fix dates and times for the interviews. Interviews were held in each interviewee's office.

4.6   Data analysis

Data analysis is concerned with the interpretation of data collected so as to draw conclusions that reflect the interest, ideas and theories that initiated the inquiry (Babbie and Mouton 2001:101). In quantitative research, data analysis involves the use of

statistics as a means of describing, analysing, summarising and interpreting data (Hittleman and Simons 2001:174). According to Hittleman and Simons (2001:174) the selection of statistical procedures is determined by the research design and type of data appropriate for answering the research questions of the study. Since the nature of the study was largely quantitative, the researcher considered SPSS package to be the most appropriate for data analysis. Powell (1993:164) recommends the use of SPSS because according to him it is a relatively easy to use for statistical analysis, report writing, tabulation and general-purpose data management. SPSS version 11.5 for windows was used.

4.6.1 Data cleaning and coding

In order to conduct a quantitative analysis a process of coding must be undertaken after the data has been collected (Babbie and Mouton 2001:412). Coding is the process of transforming raw data either manifested or latent. Latent data refers to meaning contained within communication while manifested content refers to the directly visible objectively identifiable characteristics of a communication such as words in a book, colour in a painting and so forth (Babbie and Mouton 2001:412).

However, before coding the returned questionnaires were evaluated and cleaned. The purpose of evaluating and cleaning data according to Powell (1997:61) is to check for ambiguity, completeness, comprehensibility, internal consistency, relevancy and reliability. In this regard data provided in questionnaires was checked for conflicting answers, accuracy of answer wording, adherence to question-answering instructions and other items that could lead to unreliability of data.

Numerical coding was done after data cleaning and preparing the variables that addressed the research questions. Each completed questionnaire was given a unique number for easy data entry. Responses were statistically analysed in order to determine the range of distribution of replies from measures of central tendency-mean and the median. The mean is the arithmetical average score and the median is the middle score of a group of scores arranged in ascending or descending order (Hittleman and Simon 2001:174).

4.6.2 Content analysis

Because the questionnaires and interview schedules consisted of some open-ended questions, these questions generated divergent responses. This necessitated the application of content analysis. Content analysis is the systematic, objective and quantitative analysis of the occurrences of words, phrases, concepts and the like that enables the analysis of the expressed content or the inference of the communication (Glazier and Powell 1992:49). Babbie and Mouton (2001:338) observe that content analysis is essentially a coding operation for communication generated from oral, written or other channels according to a conceptual framework. They further observe that coding in content analysis involves the logic of conceptualisation and operationalisation (Babbie and Mouton 2001:338). The operationalisation for coding according to Powell (1993:49) involves the identification, definition and decision on the unit of analysis, such as a word, sentence, paragraph or theme.

Content analysis also involves an aspect of categorisation. Categorisation is a process of organising or grouping unitised data into categories. A category has been defined as:

> *Either the name given to any class of things, actions or relationships which recur with sufficient (relatively) uniformity and frequency as to render the class as useful subject of a prediction of the class itself* (Gould and Kolb 1964:77).

The importance of categorisation in content analysis is expressed by Budd, Thorp and Donohew (1967:6) as quoted by Busha and Harter (1980:171) by contending that, no content analysis is better that its categories, for a systematic or set of categories is, in essence, a conceptual scheme. In general, the use of content analysis is according to Busha and Harter (1980:172) aimed at exactness and elimination of bias in the investigative process; its methods are employed to decrease the degree of subjectivity inherent in procedures designed to analyse or evaluate the content of materials.

In this study all aspects involved in content analysis were taken into consideration and were applied in data analysis. The units of analysis were therefore identified from respondents' responses and categories were created for data analysis.

4.7   Data presentation

This study involved four institutions as shown under sections 4.4.2.4 and 4.4.2.5. Although the respondents for all four categories were drawn from four different sites the researcher considered them as a single unit given the nature of their background and the general learning and working environment of the four institutions. For this reason the data from the study were not intended to produce comparative information about the institutions.

It was therefore considered appropriate that data and findings from the study be presented in aggregate form so as build up a comprehensive picture of the IL situation in the four universities as part of the higher learning institutions in Tanzania.

4.8   Evaluation of the methodology

Social scientists use a variety of research designs. Each design has its strengths and weaknesses in terms of its appropriateness in studying certain concepts (Babbie and Mouton 2001:100).

This study as outlined under section 4.2 used a survey research design procedure and quantitative method research process for data collection. The researcher determines the choice of a research approach, as long as he or she is convinced that the chosen method and approach is able to serve and fulfill the research purpose. According to Sproull (1995) as cited by Ngulube (2003:235) there is no one type of research design that is better or worse than any other. Thus as observed by Stilwell (2006), it is a matter of selecting an appropriate design and tools for the nature of a particular research project and its conceptual framework. In this regard the researcher opted for this method because he was convinced that he would be able to meet the intended research purpose.
The purpose of the study was to investigate the state of the art of IL in Tanzanian Universities in terms of its status and practice in enhancing teaching and learning. The goal was to find the strengths and/ or weaknesses of whatever IL practices were in existence so that in the final analysis a basis for proper and adequate strategies for both developing and introducing IL programme(s) could be adopted.

As pointed out earlier all research methods have advantages and disadvantages. One of the advantages of survey research method is in the economy of design and capacity in data collection (Creswell 2003:154). Babbie and Mouton (2001:263) point out the advantages of survey methods among others as:

- ability to describe the characteristics of a large population
- flexibility in terms of opportunity of asking many questions on a given topic
- ability to cover a large sample and collect a considerable amount of data in a short period of time and at a reasonable cost

Among the limitations of survey research, include its inability to provide information on cause-effect relation and developing the feel of the total life and actual situation of the respondent (Goyder 1987; Babbie and Mouton 2001:263). Non-response is also cited as one of the handicaps associated to survey methods research.

This study used structured and unstructured self-administered questionnaires to collect data from librarians, teaching staff and students. The study also used semi-structured interviews to collect data from Deputy Vice Chancellors, Faculty Deans, Library Directors and Library Heads. In addition the observation method was used to collect data pertaining to the general environment within libraries that in one way or another related to IL activities. By using more than one method the researcher was able to apply what is referred to as triangulation. Triangulation is a concept of tackling two or more instruments to collect data on a phenomenon under study (Yin 1994:13; Rubin and Babbie 1997:318; Arksey and Knight 1999:22). Robson (2002:174) asserts that the use of triangulation enhances the rigour of research and helps to counter all of the threats to validity thus bridging the aspects of reliability and confidence in research findings. According to Denzin (1988) as cited by Robson (2002:174), there are four types of triangulation:

- *Data triangulation*: the use of more than one method of data collection (for example observation, interviews, documents);
- *Observer triangulation*: using more than one observation in the study;
- *Methodological triangulation*: combining quantitative and qualitative approaches;

- *Theory triangulation*: using multiple theories or perspectives.

The employment of qualitative approach in addition to the mainly quantitative approach, a combination of data collection instruments and the use of different categories of respondents on the same topic was considered as an advantage by the researcher in fulfilling his study objectives. Stilwell (2006:3) observes that an understanding of the combination of approaches used in research contributes to its logic and coherence.

As pointed out above, non-response is among the disadvantages of survey method research. Non response rate can be affected by failing to respond to the questionnaire, the way respondents complete the questionnaire, uneven impact of question structure as well as question wording (Ngulube 2003:235-236). According to Babbie and Mouton 2001:261) overall response rate is a guide to representativeness of the sample's respondents, high response rate reduces chances of significant response bias. In order to avoid the problem associated with non response, precautions were taken into consideration. These precautions included thorough scrutiny of question correctness in terms of structure, wording and sequence. Undertaking pre-testing of questionnaires as before data collection began as stated under 4.4.2 and the use of a research assistant in every institution under study was also used as ways of avoiding poor response rate.

One of the pre-requisites of using questionnaires and interviews is making sure that respondents and interviewees are capable of giving reliable responses (Babbie and Mouton 2001:236). This study was about IL activities in four Tanzanian Universities. In its various dimensions IL involves various partners including students, librarians, teaching staff, Faculty Deans and other university administrators like Deputy Vice Chancellors. As far as this study is concerned, the respondents and interviewees namely students, librarians, teaching staff, Faculty Deans and other university administrators like Deputy Vice Chancellors were potential and reliable for providing the required data. It was fortunate that all respondents and interviewees cooperated well in providing the data required. Even when a student at SUA was suspended and when questionnaires were redistributed there was a resonably good response rate by the respondents.

In general with the explanation given above regarding the research design and the procedure that was followed for data collection and finally analysing it, the researcher was convinced that the whole process provided valid and reliable research results.

4.9   Summary

This chapter has discussed the methodological approach that was used in conducting the study. As identified earlier, the study involved a survey research method using a self-administered questionnaire as the main data collection instrument. The self-administered questionnaires were supplemented by a semi-structured interview and observations.

The nature of the problem under study determined the choice of the research method as well as the choice of research instruments. The advantages embedded in survey methods as outlined under section 4.2, greatly influenced its choice. The research objectives and research questions formed the base and direction of the research thus the research instruments essentially attempted to respond to the objectives and the research questions.

The research instruments were also pre-tested before they were fully administered to the respondents. Data collected was coded and categorised for content analysis before being analysed using SPSS version 11.5 for Windows. An evaluation of the methodology used for the study has been outlined by reporting on the validity and reliability of the methods used.

Chapter Five

Presentation of research findings

5.1   Introduction

This chapter presents the findings of the study. The purpose of the study was to investigate the status and practices of IL in Tanzania's four major universities (UDSM, SUA, SAUT and IUCO) in order to establish the basis for strategies that could be adopted to introduce and develop effective IL programmes in higher learning institutions in Tanzania. The backgrounds and profiles of the universities involved in this study have been presented in section 2.10. From the purpose of the study the following five objectives were generated:

(i)   To identify, assess and evaluate the types or forms of library instruction (as an aspect of IL) that is currently in practice within these institutions

(ii)   To identify teaching practices among lecturers so as to determine their strengths and or weakness regarding the promotion of IL skills among students

(iii)   To identify areas of weaknesses and strength concerning IL skills among students.

(iv)   To identify obstacles or barriers that bear on the effective implementation of IL programmes

(v)   To propose a suitable IL programme approach that can be adopted by higher learning institutions in Tanzania.

In order to collect data the five study objectives above were guided by the following research questions:

(i)   What is the state of library instruction (as an aspect of IL) with respect to the following:

   • Type of instruction

   • Methods of delivery and their effectiveness

   • Staff involved in teaching IL (are library staff and academic teaching staff involved in teaching IL)

(ii)   What are the teaching practices or methods that are used by lecturers promoting IL knowledge skills among students?

(iii)   What is the level or state of IL competence among students in relation to:

- Information searching skills using electronic and non electronic sources of information?
- Skills and levels of literacy in the use of various computer applications?
- Knowledge and skills in information evaluation?
- Knowledge and skills in information organisation?

(iv)   What are the barriers that influence effective implementation of IL programmes?

- University policies
- Availability of resources
- Attitudes and behaviours among staff and students
- Knowledge and skills and competence among staff in teaching IL
- Time and sufficient staff

(v)   What strategies and what models can be adopted for the effective implementation of IL programmes?

In order to collect data, three main categories of respondents were involved in the study. These were librarians, teaching staff and students. Each category had its own questionnaire. A total of 1576 questionnaires were distributed of which 25 were for librarians, 428 for teaching staff and 1123 for students. The return rate of the questionnaires was 25 (100%) for librarians, 258 (60.2%) for teaching staff and 664 (59.1%) for students. Questionnaires, as the main data collection instrument, were supplemented by interviews and observation schedules. The interviews were conducted with three Deputy Vice Chancellors-Academics, 12 Faculty Deans, 2 Library Directors and one Library Head (See Appendices 10 and 11).

5.2   The demographic data of the respondents

Items in section A of all the questionnaires namely question 1 (1.1-1.4) for librarians, question 1 (1.1-1.6) for teaching staff and question 1 (1.1-1.6) for students had items that required the respondents to provide their background information. For librarians, aspects that were asked under this section were rank, gender, highest academic qualification and years of working in the library. For teaching staff aspects that were asked include

designation, gender, faculty, department, area of specialization, and years of working. Students were asked about programme of study, faculty, year of study, gender, university enrolment status and the type of schools they attended. This information was considered to be essential because it potentially influences IL practices among the respondents. Working experience among teaching staff, for example, is an important factor in experiencing and determining academic and other learning weaknesses among students. This experience can also influence the way a lecturer treats his/her students in terms of information use. Working experience can also be applied to librarians in terms of understanding students' problems in information searching, use of various information sources and IL skills in general. For students, the time spent in a university environment can also influence the level and experience in various IL skills. The demographic details for each category are as follows:

5.2.1 Questionnaire respondents

5.2.1.1 Librarians

In Tanzania practicing academic librarians have academic status, hence can hold the title of Professor and Associate Professor. In terms of their designations out of the 25 librarians two (8%) were Associate Professors, nine (36%) Senior Librarians, five (20%) Librarians and nine (36%) Assistant Librarians. Regarding their academic qualifications seven (28%) held PhDs, 15 (60%) possessed a Master's degrees, two (8%) had a first degrees and one (4%) had a Post Graduate Diploma. In terms of work experience 10 (40%) had worked over 16 years, 10 (40%) had worked between 1-5 years, three (12%) had worked between 11-15 years while two (8%) had worked between 6-10 years. Regarding gender 14 (56%) were males while 11 (44%) were females. A graphic representation of the librarians' designations is shown in figure 5.1 below.

Figure 5.1   Librarians' designations

■ Associate Professors ■ Senior Librarians □ Librarians □ Assistant Librarians
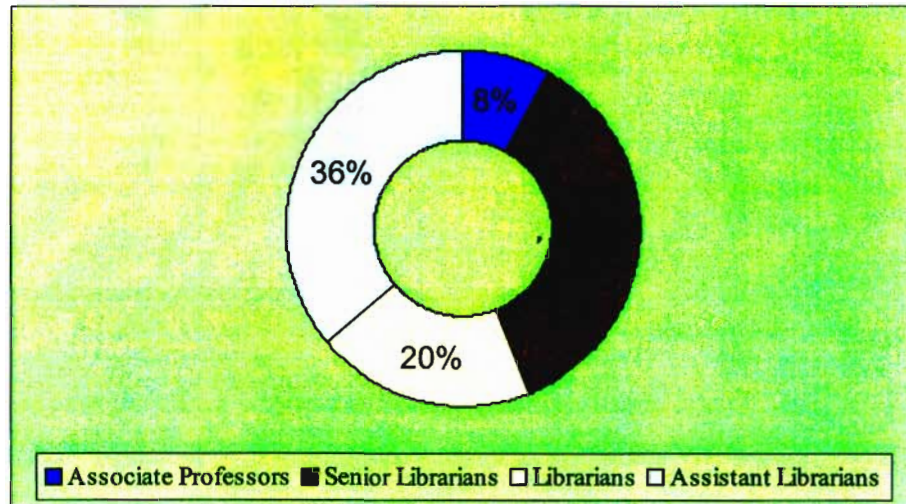
5.2.1.2 Teaching staff

The teaching staff involved in this study numbered 258. Of these 23 (9%) were

Professors, 42 (16%) were Associate Professors, 67 (26%) were Senior Lecturers, 59

(23%) were Lecturers and 67 (26%) were Assistant Lecturers. Of the teaching staff, 217

(84%) were males and 41(16%) were females. In terms of their work experience 105

(41%) had worked over 16 years, 63 (24%) have worked between 1-5 years, 52 (20%)

have worked between 11-15 years and 38 (15%) have worked between 6-10 years.

Figure 5.2 below indicate teaching staff designations in a graphic form.

Figure 5.2   Teaching staff's designations
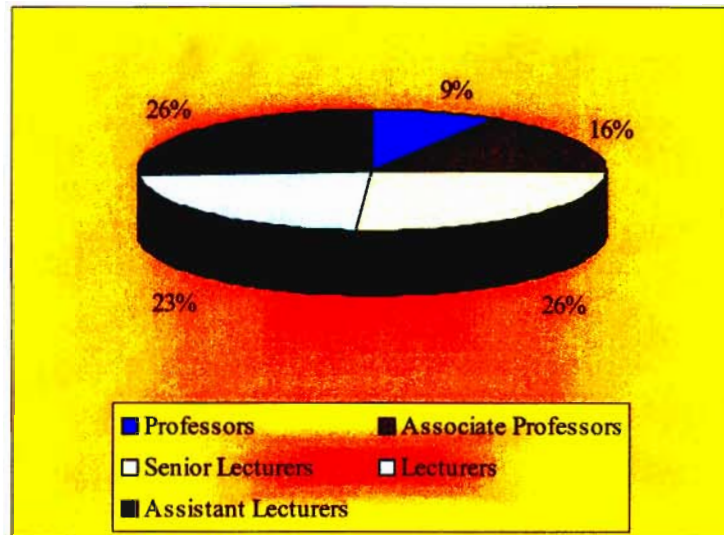
5.2.1.3 Students

This study involved 664 students of whom 428 (64.5%) were males while 236 (35.5%) were females. Regarding their university enrolment status 461 (69%) were enrolled as direct from school and 203 (31%) were mature students. In terms of secondary schools they attended before joining universities 467 (70%) attended government schools, 133 (20%) attended private religious schools and 64 (10%) attended private non-religious schools. The graphic representation of the students' enrolment is shown in figure 5.3 below.

Figure 5.3   Students' enrolment status

	Direct from school	Mature students	Government secondary	Private religious	Private non-religious
■	461	203	467	133	64
■ %	69	31	70	20	10
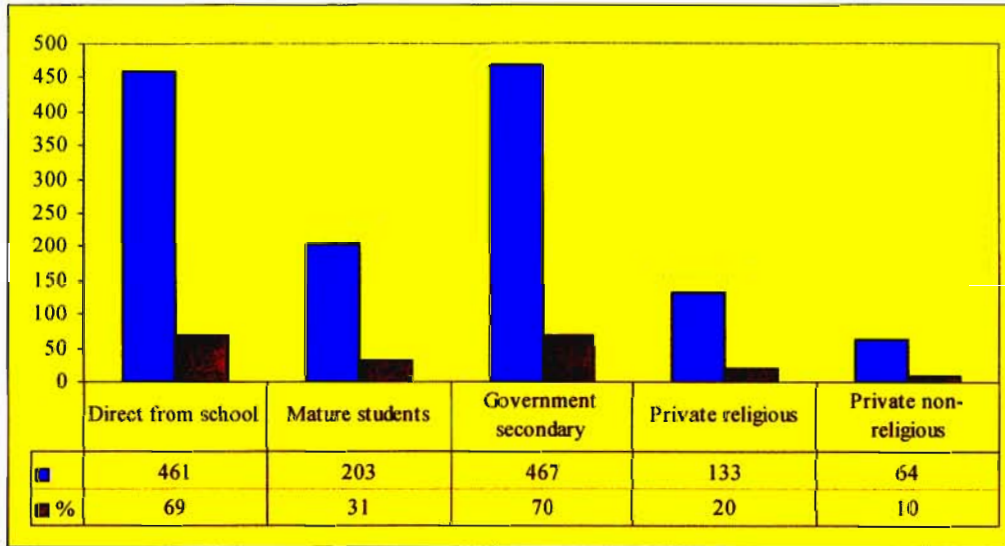
5.2.2   Interviewees

5.2.2.1 Deputy Vice Chancellors -Academics

Three Deputy Vice Chancellors responsible for academic affairs were involved in the interviews. All of them were males and had doctoral degrees comprising one Professor, one Associate Professor and one Senior Lecturer.

5.2.2.2 Faculty Deans

Twelve Faculty Deans were interviewed. All of them had doctoral degrees and they included two (17%) Professors, four (33%) Associate Professors and six (50%) Senior Lecturers. Three (25%) were females.

5.2.2.3 Library Directors/Heads

Two library directors and one library head were involved in the interviews. Of the two directors one was a female with a doctoral degree and an Associate Professor while a male library director had a Masters degree. The library head was a female and had a Masters degree. All interviewees were substantive bearers of their respective positions, that is they were not acting in those positions.

With this demographic background for the respondents and also taking into consideration that the sample for the respondents was drawn from all faculties, departments and all levels (years) of study, the researcher regards this as a positive aspect for the validity and reliability of the responses.

5.3   Data presentation

In this study the questionnaires were designed to cover the objectives and research questions indicated under 5.1. Every objective had a corresponding research question and each category of the respondents had questions that addressed those objectives and research questions. Interviews were used to obtain supplementary data and to verify some issues that emanated from some of the responses in questionnaires. The data obtained from questionnaires and interviews are presented in five sections. Each section presents data for one objective and its corresponding research question. Section one presents data for objective one and research question one, section two presents data for objective two and research question two and so on. In summary, the data presented in each section are as follows:

The first section presents data from questions that were intended to identify, assess and evaluate the general state of the art concerning the types or forms of library instruction that were available in the universities under study. The second section reports about various teaching methods and other practices that are used especially by lecturers that are in one way or another considered as promoting or impeding IL. Section three presents data regarding competence or incompetence concerning aspects of IL among students. Section four presents data on various aspects that are perceived to be obstacles or barriers that impede IL practices in the universities under study.

The last section presents data on the views and opinions on how effective IL programmes can be introduced or implemented. Questions falling under this section were considered important, taking into consideration that in order to introduce and finally implement any new programme particularly in an academic setting such as a university, proper planning on how to go about the implementation is crucial.

In order to systematically present findings for questions falling under each research objective, the findings are presented under each category of respondent. As mentioned under 4.7 result, unless stated otherwise the findings presented in this chapter are presented in an aggregate form so are not directly linked to any specific institution.

5.3.1 Identification, assessment and, evaluation of the forms of library instruction that are in practice.

Under this section the data presented includes IL training methods and their effectiveness, IL aspects that are taught, categories of staff involved in IL activities such as teaching and curriculum design, IL assessment/evaluation, requirements and needs for IL training and information resource use patterns among students.

5.3.1.1 Librarians

Although IL is not solely a library issue, the library plays a central role in the development and application of information literacy skills for students. Most of IL activities involve the information domain in which librarians are very much involved. Librarians as information experts have a role to play in initiating as well as facilitating IL practices in their respective institutions. With this understanding in mind, librarians were asked the majority of questions, 10 in all, under this section

Question 2 of the questionnaire asked the librarians to respond concerning whether their libraries provided education and training in IL that aimed to make library users effective information users. Of the 25 respondents 23 (92%) confirmed that their libraries were providing education and training for their users. In question 3 librarians were asked to mention the methods they used for IL teaching. The results as shown in Figure 5.4 indicate that lecture method with 15 (28%) responses was the main method used followed by orientation and hands-on practices with 11 (21%) responses each. Web pages had 8 (15%) responses, seminars 7(13%) responses while leaflets had 1(2%) responses.

Figure 5.4   Methods used to teach IL

N= 23
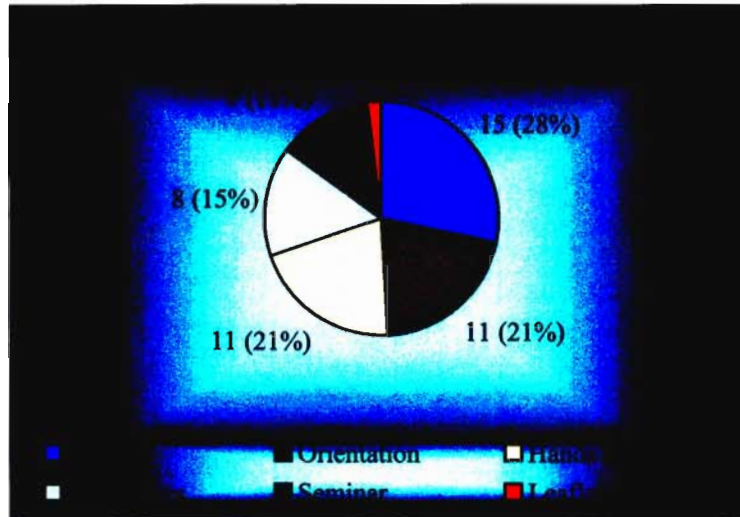
Question 4 of the questionnaire asked the librarians to mention whether IL programmes were taught as integrated or stand alone-programmes. The responses show that 14 (63.6%) had a stand-alone programme while eight (36.4%) responded for integrated programme. Question 5 asked about the type of staff who were involved in IL activities. The results for this question as shown in Figure 5.5 below indicate that librarians are greatly involved in IL activities. Of the respondents, 11 (47.8%) indicated that IL activities were undertaken by *academic and non-academic librarians*[6] while eight (34.8%) indicated that academic librarians undertook IL activities. In aggregate 82.6% of IL activities is undertaken by library staff as either academic or non-academic librarians.

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[6] In Tanzaniauniversity libraries *academic librarians* are those who are employed in the academic staff category; their terms of employment and their promotion criteria are the same as teaching staff while *non-academic librarians* are employed in the administrative staff category.

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Figure 5.5   Staff involved in IL

N=23
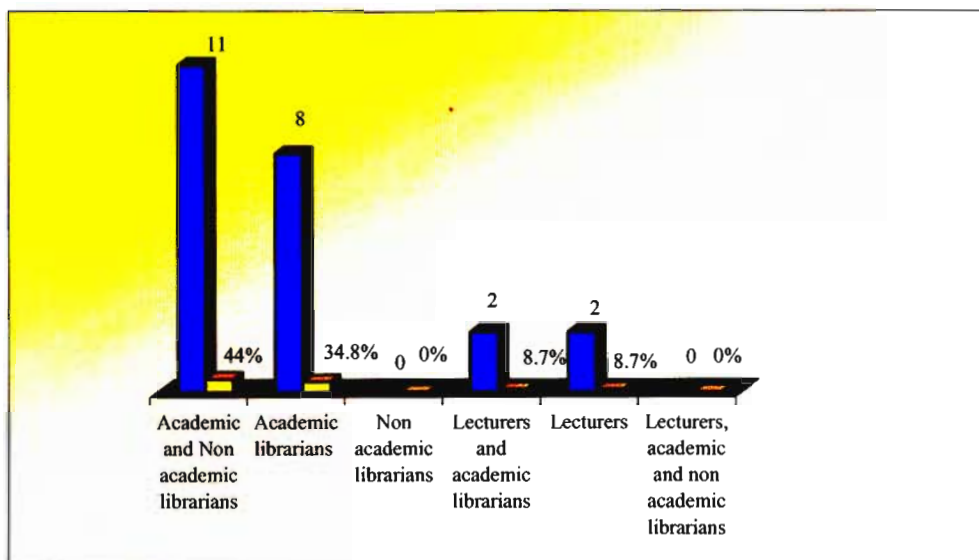
In question 6 librarians were required to select the activities in which lecturers were involved. The first option was designing the IL content; the second was asking the librarians which IL aspects were taught; the third option was for teaching IL; the fourth option was a combination of option one, and two and the last option was a combination of option one, two and three. Only six respondents responded to this question. Of the respondents three (50%) responded to option one while options two, three and four was responded to by one (16.7%) respondent each. The low response for this question was probably caused by the fact that as indicated in Figure 5.5 lecturers are almost not involved in IL activities.

IL involves a number of skills as indicated in chapter three. In order to find out about the scope of IL activities that are involved, in question 7 librarians were asked to mention aspects that are covered in IL programmes. Five IL aspects were listed as indicated in Figure 5.6 below. The results indicated, information search skills were ranked first with 18 (35%) responses, followed by use of library facilities with 14 (27%) responses, information evaluation with 9 (17%) responses, use of sources of information with 8 (15%) reponses and lastly was the citation and referencing with 3 (6%) responses.

198

Figure 5.6: Aspects covered in IL programmes

N= 20
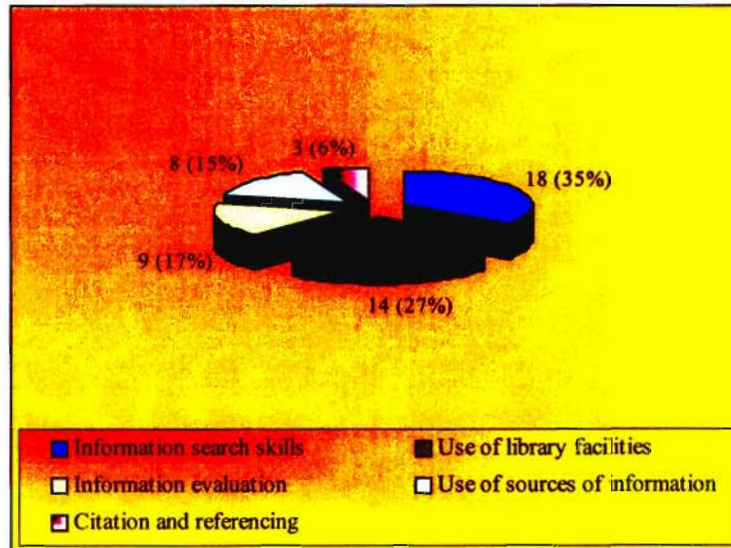
In connection with the IL aspects offered, the respondents were asked in question 8 to state whether they had any system of assessing or evaluation their IL activities and if so what were the methods used for evaluation or assessment issues. Of the respondents 17 (68%) said there was no system of evaluation while eight (32%) said there was an assessment system. The eight (32%) respondents who responded noting the presence of assessment or evaluation methods were asked in question 9 to mention the methods for evaluation/assessment. The results indicate that three (37.5%) responses were for the examination method, two (25.5%) were for assignments and feedback evaluation forms had three (37.5%) responses.

The respondents were further asked in question 10 to specify at what particular stage of IL programmes the evaluation/assessments were done while question 11 required the respondents to point out what aspects of IL were being evaluated or assessed. Table 5.1 shows the results for those questions. The most significant stage for evaluation or assessment as indicated in the table is during the programme, indicated by four (50%) of the eight respondents. The main IL aspect being assessed/evaluated is students' skills

gained during the programme that was mentioned by seven (87.5%) respondents. The responses indicated that teaching methods were not being evaluated/assessed at all.

Table 5.1   Stages for IL assessment or evaluation and IL aspects assessed or evaluated

N=8

Evaluation/ assessment stage	Frequency	IL aspects assessed/evaluated	Frequency
During the programme	4 (50%)	Students' skills gained during the programme	7 (87.5%)
During and at the end of programme	2 (25%)	Students' prior IL skills	1 (12.5%)
		Teaching methods	0 (0%)
At the beginning of the programme	1 (12.5%)		
Any time	1 (12.5%)		

5.3.1.2 Teaching staff

As discussed in chapter three, teaching staff are key players in the facilitation of changes in various academic issues. Their influence can easily enable IL activities to be accepted and to be given weight by both students and university administrators. In order to identify, assess, evaluate the state of the art of forms of library instruction that are in practice, teaching staff were asked two questions. Question 2 asked the teaching staff whether they were aware that the library educates and provides training in IL for users so as to give them skills to become effective library and information resources users. The next question was question 3 which asked them whether they considered that the knowledge and skills for effective use of the library and its resources contributed positively to students' academic performance.

The responses from 258 respondents showed that 180 (69%) were aware of the training being offered. On the other hand 30 (11.6%) said there was no such training while 48 (18.6%) did not know if there was such training. Regarding the positive contribution towards student's academic performance brought about by skills in the use of library and other information resources as asked in question 3, 244 (94.6%) of the respondents agreed that effective use of the library and its resources contributed positively to a student's academic performance. An insignificant number of 14 (5.4%) indicated that knowledge and skills for effective library and information resources has no positive impact towards academic performance.

5.3.1.3 Students

In order to identify, assess and evaluate the state of the art on the forms of library instruction that were in practice students were asked two questions. Students were asked in question 9 to state if they used the university/college library. The responses revealed that out of 664 respondents, 646 (97.3%) agreed that they used the library while 18 (2.7) said they did not use the library.

Students were then asked in question 24 to confirm if they knew about the availability of some training in the use of library resources conducted by their libraries. The results indicate that 328 (49%) agreed that they were aware of the training and 336 (51%) said they were not aware of that training. The 328 respondents who agreed to having knowledge about the training were asked in question 25 to give their views on whether the training was effective or not. The results indicate that 148 (47%) thought that the training was effective while 164 (53%) said the training was not effective. The reasons for their answers are shown in table 5.2. Of the respondents 16 did not give reasons.

Table 5.2 Evaluation of and reasons for the effectiveness of training in the use of library resources

N = 312

Effective		Not effective	
Reasons	Frequency	Reasons	Frequency
Provides exposure to library users	89 (28%)	Time spend not adequate	133 (43%)
Provides adequate skills	59 (19%)	Programme not comprehensive	12 (4%)
		Lack of proper programme	7 (2.2%)
		Lack of practice	7 (2.2%)
		Unqualified instructors	5 (1.6%)

As a follow up of responses given by librarians regarding some methods used for teaching IL, library directors and a library head were interviewed in questions 1 of the interview schedule to explain in what form and scope the lecture method was being used to teach IL. The respondents identified three main occasions where lectures are used to teach IL as follows:

During IL sessions that are conducted after being requested by some lecturers for their students. In most cases this is done for postgraduate students.

(i)   When a librarian is invited to deliver a talk to a specific programme or seminar group.

(ii)   During IL sessions conducted for students who attend them voluntarily when those sessions are scheduled.

In question 2 of the interview schedule respondents were asked to give their comments for reasons that lead to 336 (51%) of the student respondents not being aware about IL training being offered and how that situation could be improved. Some answers that were given indicated that the orientation programme is the main occasion used for delivering forms of instruction for library use. However orientation as it is practised is not given adequate time and not all students attend it. One of the directors gave the information that some forms of IL classes are provided on a voluntary basis hence only a few students attend them. Another reason cited for poor awareness among students about library services and its activities is lack of recognition for the library as an important educational resource.

In order to improve that situation, the directors and head of the library suggested the following:

- The need for librarians to become more active in marketing their services among students and staff.

- The need for sensitisation on the importance of information resources among lecturers who in turn would sensitise their students.

The Library directors and library head were also interviewed in question 3 to give their comments on how to improve some inadequacies about IL training that were cited by students as reported under 5.3.1.3. All the three interviewees agreed that IL programmes and other instruction modes including orientation had some problems that emanate from a number of reasons including:

- Absence of a formalised programme that could be allocated adequate and specified time

- Inadequate time leads to limited coverage for the required aspects to be taught.

- Inadequate resources especially PCs negatively affects the training especially hands-on practice.
- Large numbers of students compared to the number of qualified staff sometimes leads to the engagement of some junior or unqualified library staff to conduct aspects of training such as orientation.

The suggestions given in order to solve some of those problems were:
- The introduction of a formalized programme that would be allocated specific time in the timetable.
- Provision of adequate resources such as PCs as well as human resources.
- Introduction of training for trainers programmes so that more staff (both librarians and teaching staff) can be trained to teach IL.

5.3.2 Teaching methods and practices employed by lecturers that promote or impede IL

Under this section questions attempted to find out about various teaching methods and other practices that are used by lecturers that in one way or another could promote or impede IL. Teaching staff can influence the way students should use the library and other information sources in general. The questions were therefore intended to find out the extent to which teaching staff required their students to use a variety of information sources and the methods they employed to ensure that their students are exposed to and acquire the needed library and information skills. On the other hand students were also asked to evaluate their lecturers' requirements in relation to their use of information sources. Questions under this aspect were only asked of teaching staff and students.

5.3.2.1 Teaching staff

Teaching staff were asked in question 9 to respond by a "Yes" or "No" response to confirm whether they required their students to use information sources in addition to those they prescribe. The response for this question indicated that 246 (95.5%) confirmed that they required their students to use additional sources while 12 (4.7%) did not do so. Teaching staff were required in question 10 to rate their requirements for students to use

information sources prescribed by them and for searching and discovering other information apart from the ones they prescribe to their students. Table 5.3 below shows their rating for those two aspects.

Table 5.3   Teaching staff's ratings of their requirements for use of information sources by students

N = 258

Category of information source usage	Rating		
	High	Moderate	Low
1. Use information sources (e.g. books, articles) that you prescribe for them	79 (30.6%)	160 (62%)	19 (7.4%)
2. Searching and discovering other information sources apart from yours	75 (29.1%)	117 (45.3%)	66 (25.6%)
3. Both 1 and 2 above	62 (24.1%)	167 (64.7%)	29 (11.4%)

In relation to their requirements for their students to use additional information sources apart from the ones they prescribe, teaching staff were asked in question 11 to indicate by showing the steps they took in order to ensure that their students acquire knowledge and skills about the use of the library and other information sources. The responses given show that the majority 207 (84.1%) of the teaching staff preferred asking the students to go to the library on their own to consult the librarians. Table 5.4 indicates their prioritisation of the methods they preferred in order to expose their students to the library and other information sources.

Table 5.4   Prioritisation of methods preferred in exposing students to the library and other information sources

N = 246

	Method preferred for students' exposure to library/information sources	Frequency
1	Asking the students to go to the library on their own and consult the librarians	207 (84.1%)
2	Asking the librarian to introduce and teach them how to use specific resources that you consider important	21 (8.5%)
3	Taking students to the library and introducing them to the resources	18 (7.3%)

5.3.2.2 Deputy Vice Chancellors and Faculty Deans

5.3.2.2.1   Opinions by Deputy Vice Chancellors and Faculty Deans on how to improve students' information skills

In the interview schedule for Deputy Vice Chancellors (three) and Faculty Deans (12), which had six questions, question 1 asked them to give their opinions on what should be done in order to equip university students with skills to enable them to become effective and competent users of information resources. This particular question came as a result of the study findings that most students attend university with very limited information resources use skills because of the backgrounds from which they come.

The responses given as solutions to improve the problem could be categorised into two constituencies: firstly, are those falling within the university constituency and secondly, those under the government constituency.

5.3.2.2.1.1   Solutions falling under the university constituency

(i)   Library orientation should be improved and be used as an introduction only (six - 40%).

(ii)   A more comprehensive programme should be introduced (ten - 66.6%).

(iii)   Libraries should be provided with adequate resources to support the training to be introduced (six - 40%)

(iv)   Librarians should become more dynamic. They should introduce different methods to deliver IL skills, such as brochures and leaflets, manuals and web pages (six - 40%)

(v)   Teaching methods should be changed so as to become more student centred. Students should be exposed to study skills, be given assignments that require them to read, present seminars, and take part in discussions (three - 20%).

(vi)   Lecturers should be sensitised on the importance of IL so that they become knowledgeable about it and in turn they can insist on it to their students (three - 20%).

5.3.2.2.1.2   Solutions falling under the national constituency

(i)   Reading culture among many Tanzanians both in rural and urban centres is very low. This situation should be improved starting from lower levels by:

- Introducing and strengthening library services for the community (four - 26.6%).
- Strengthen the publishing industry (eight - 53.3%).
- Strengthen the school library service through provision of reading resources and staff (four - 26.6%).
- Introducing and stimulating ICT facilities such Internet cafés and tele-centres (three - 20%).

Question 2 of the interview schedule for Deputy Vice Chancellors and Faculty Deans asked them to comment on the criticism levelled against the teaching methods employed by lecturers in developing countries, that they rely heavily on lectures and materials prescribed by them thus suppressing students' independent learning and enquiring minds. All 15 interviewees agreed that teaching methods contain some elements of problems such as over reliance on the lecture method of delivery and poor involvement of students in active learning processes; therefore teaching methods need to be changed. However, they also attributed the problems to a number of reasons including the following:

(i)   A poor background in terms of reading culture among students that compels the teaching staff to assist them by prescribing books.

(ii)   A lack of adequate resources such as books, journals and other information resources necessitates teaching staff to prepare supplementary reading materials such as notes and handouts.

(iii)   A lack of modern teaching tools such as PCs, projectors and other gadgets force them to use lectures as their main teaching method.

(iv)   The large number of students per class makes it difficult for lecturers to use certain teaching methods hence they opt for the lecture method.

In order to improve that situation the following solutions were proposed:

(i)   Libraries should be equipped with adequate resources.

(ii)   Lecturers should be exposed to teaching methods in order to improve teaching skills.

(iii)   Teaching methods should be student centred and resource based.

5.3.2.3 Students

Student respondents were asked in question 12 to respond by a "Yes" or "No" response regarding their lecturers requiring them to use the library. Of the 664 students 649 (97.7%) gave a Yes response to confirm that their lecturers required them to use the library while 15 (2.3%) gave a "No" response and 15 did not respond to the item. In Question 13, students were asked to rate their lecturer's emphasis on their requirements concerning using the library and other information resources apart from those prescribed by them. Students' responses indicated that the emphasis by lecturers on this aspect was Moderate followed by High and Very high. This is shown by 272 (42%) responses given by students for moderate, 195 (30%) for high, 163 (25%) for very high, 15 (2%) for low and 4 (1%) for very low. Figure 5.7 below shows students' ratings regarding emphasis by teaching staff for their students' use of additional information sources.

Figure 5.7   **Students' rating of emphasis by lecturers on use of additional information sources**

N = 649

207
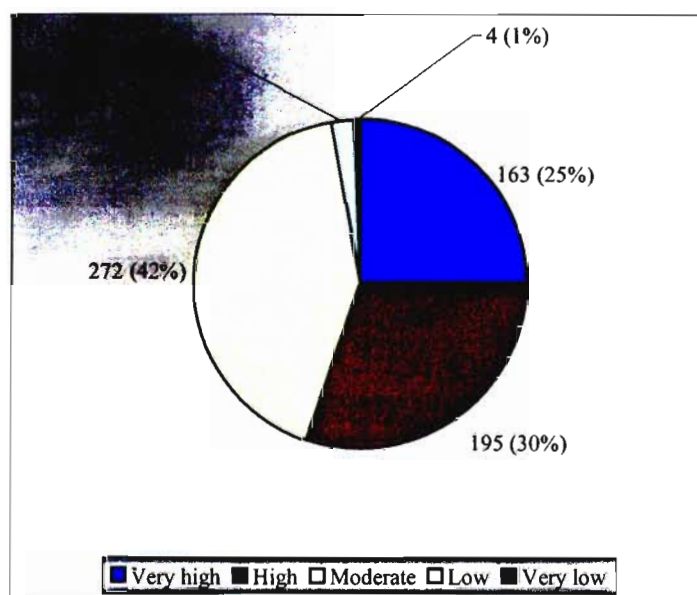
5.3.3 Levels of IL competence and incompetence among students

Although it has been pointed out in chapter three that students attend universities without adequate IL skills, however, they were not considered to be **"tabula rasa"**[7]. As such, students were considered to have a certain level of skills in some aspects pertaining to IL. This consideration was based on students' prior experience before entering university as well as experience gained while at the university. The reported data under this section are mainly on the level of students' skills in IL. Specifically the data presented is on the students' background and knowledge in using the library and its resources, skills and scope of competence in using various information sources and the general awareness for ethical use of information.

5.3.3.1 Librarians

Under this section in question 13, librarians were asked to rate the students in terms of their ability in using library resources and information search skills. The rating was from "Very good", "Good", "Fair", "Poor" and "Very poor". The results of the rating showed that three (12%) rated the students as good, 14 (56%) as fair, four (16%) as poor and four (16%) very poor. Following the above ratings librarians were required in question 14 to indicate by ticking out of eight IL aspects, three areas that they considered to be the weakest among students. Table 5.5 shows the response to that question and the results indicate that the three IL skills that are considered by librarians to be the weakest among students are the formulation of a search strategy and establishing key words that scored 21 (27.3%) responses, searching for information from electronic sources that scored 16 (20.8%) and topic analysis that scored 13 (16.9%).

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[7] "Tabula rasa" is Latin for *scraped tablet* or *blank slate*. John Locke a 17th century English philosopher used tabula rasa in his theory that the human mind is at birth a 'blank slate" without rules of processing data, and that data is added and rules for processing is formed solely by our sensory experience.

Table 5.5   **IL knowledge and skills among students that are considered weak by librarians**

N=25

Information literacy knowledge and skills	Frequency
Formulation of search strategy and establishing key words	21 (27.3%)
Searching for information from electronic sources	16 (20.8%)
Topic analysis	13 (16.9%)
Evaluation of information	11 (14.3%)
Catalogue usage and location of relevant information sources in the library	8 (10.4%)
Knowledge about using electronic sources	7 (9.1%)
Knowledge about using print (hardcopy) sources	1 (1.3%)
Searching for information from print (hard copy) sources	NIL

5.3.3.2 Teaching staff

In order to collect information regarding competence and incompetence for IL aspects among students question 4 asked the teaching staff to respond to whether there were any specific aspects of knowledge or skills related to library and information use that were considered inadequate. The response results for this question indicated that 180 (69.8%) agreed by a "Yes" response that there were IL aspects that are inadequate and 78 (30.2%) gave a "No" response. Teaching staff were then asked in question 5 to indicate by ticking out of eight IL aspects; three areas that they considered to be the weakest among students. As indicated in Table 5.6, searching for information from electronic sources was ranked as the first weak aspect with 167 (21.1%) responses, followed by formulation of search strategy and establishing key words with 140 (18.1%) responses and the third aspect was evaluation of information with 128 (16.5%) responses.

Table 5.6   **IL knowledge and skills among students considered weak by teaching staff**

N=258

Information literacy knowledge and skills	Frequency
Searching for information from electronic sources	167 (21.1%)
Formulation of search strategy and establishing key words	140 (18.1%)
Evaluation of information	128 (16.5%)
Catalogue usage and location of relevant information sources in the library	127 (16.4%)
Knowledge about using electronic sources	94 (12.1%)
Topic analysis	85 (11%)
Searching for information from print (hard copy) sources	25 (3.2%)
Knowledge about using print (hardcopy) sources	12 (1.5%)

The teaching staff were then asked in question 6 to list the five most problematic areas among the IL aspects they considered weak among students. The results are as shown in Figure 5.8. below.

Figure 5.8   **IL aspects considered by teaching staff to be most problematic among students' inadequate IL skills**

N=258

31.8% (124) Searching for information

24.1% (94) Use of electronic source

21.5% (84) Citation & referencing

19.7% (77) Evaluation of information

2.8% (11) Ethical use of information
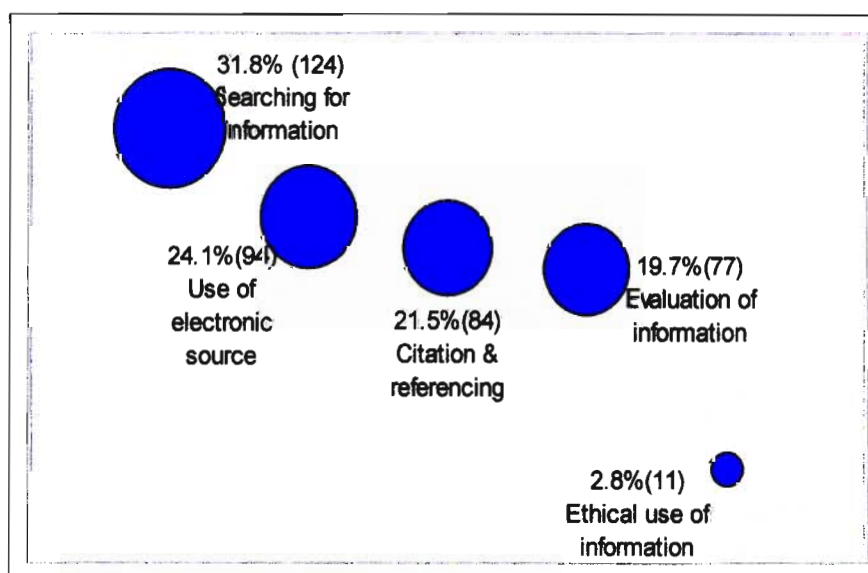
In order to find out more about the competence or incompetence regarding IL skills among students, judging from assignments done by the students, teaching staff were asked in question 8 to rate the students by ticking "Very good", "Good", "Average", Poor", "Very poor" and "Don't know" for four selected IL aspects as indicated in table 5.7. The highest rating for competence for three IL aspects was average for use of range of information sources by 137 (53.1%) respondents, use of up to date sources by 114 (44.2%) respondents and critical evaluation of information by 116 (45%) respondents. For ethical use of information the highest rating was poor with 109 (42.2%) of the respondents. The results are as indicated in table 5.7.

Table 5.7   Rating of competence for IL aspects judging from students' assignments

N=258

Information literacy aspects	Very good	Good	Average	Poor	Very poor	Do not know
Range of source material used e.g. books and journal literature in print and electronic format	3 (1.2%)	21 (8.1%)	137 (53.1%)	73 (28.3%)	21 (8.1%)	3 (1.2%)
Use of up to date source material	4 (1.6%)	27 (10.5)	114 (44.2%)	85 (32.9%)	26 (10.1%)	2 (0.8%)
Critical evaluation of the information they use	-	8 (3.1)	116 (45%)	96 (37.2%)	35 (13.6%)	3 (1.2%)
Ethical use of information in general e.g. awareness of plagiarism	1 (0.4%)	10 (3.9)	70 (27.1%)	109 (42.2%)	51 (19.8%)	17 (6.6%)

Question 13 asked the teaching staff whether they could discern any differences regarding IL knowledge and skills in students from different academic years or level of study such as first years as opposed to second years. The results showed that 184 (71.3%) agreed that there was some difference among levels while 74(28.7%) indicated that there was no difference. Question 14 asked the teaching staff to give details on the discerned differences. The results showed that 117 (63.6%) pointed out that senior students were better with regard to IL competence when compared to junior students. In the same

regard 67 (36.4%) of the respondents said that students tended to acquire IL skills as they advanced to senior levels of their university education.

Making reference to a definition of information literacy as *"the ability to access, use and evaluate information from different sources to enhance learning, solve problems and generate knowledge"* teaching staff were asked in question 12 to rate the students in terms of being or not being information literates. The results as shown in figure 5.9 below indicates that 120 (46.5%) of the teaching staff rated the students as moderately information literate. The next highest category was weak, followed by strong.

Figure 5.9   Teaching staff's ratings of students' level of information literacy N=258
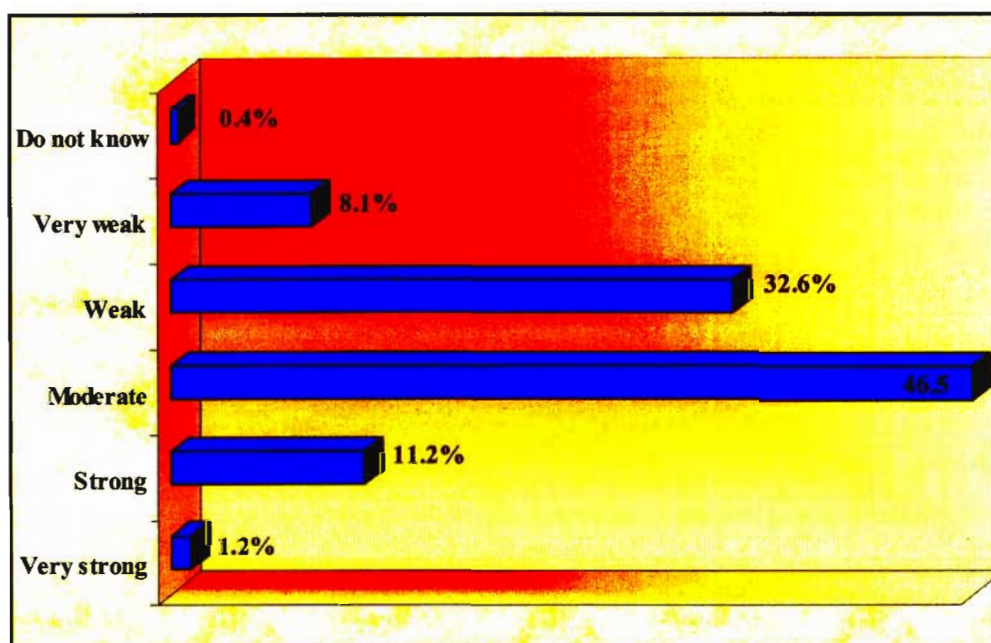
5.3.3.3 Students

In order to collect information regarding aspects of IL competence and incompetence among students, student respondents were the main target. In order to get this information some questions centred on their background for their pre-university/college library and information sources usage. Question 2 required students to answer by a Yes or No

response if they had a library in the schools/colleges they used before attending the university. Out of 664 respondents, 169 (25.5%) said they had libraries while 495 (74.5%) said they did not have libraries. Question 3 required students to give some descriptions of their school libraries in terms of buildings, staffing, availability of resources and their arrangements. Table 5.8 shows students' response regarding library situations in their schools.

Table 5.8   Student descriptions of school library situations
N=169

Statement	Response		
Buildings and staffing	Yes	No	Don't Know
The library was an independent building	81 (47.9%)	60 (35.5%)	28 (16.6%)
The library was a single room in a building used also for other activities	32 (18.9%)	109 (64.5%)	28 (16.6%)
The library had a permanent trained librarian	47 (27.8%)	97 (57.4%)	25 (14.8%)
The library was attended to by one of the teachers	22 (13%)	120 (71%)	27 (16%)
The library was attended to by a student	95 (56.2%)	32 (18.9%)	42 (24.9%)
Information resources in print and electric formats			
Reference works e.g. encyclopaedias, dictionaries etc	126 (74.6%)	43 (25.4%)	-
Other subject related literature	154 (91.1%)	-	15 (8.9%)
Journals	73 (43.2%)	68 (40.2%)	28 (16.6%)
Fiction (e.g. novels and stories)	126 (74.6%)	15 (8.9%)	28 (16.6%)
Newspapers and magazines	137 (81.1%)	32 (18.9%)	
Audio visual materials	-	156 (92.3%)	13 (7.7%)
Catalogue and books arrangement			
The library had a catalogue	16 (9.5%)	97 (57.4%)	56 (33.1%)
Books were arranged alphabetically by titles	108 (63.9%)	31 (18.3%)	30 (17.8%)
Books were arranged alphabetically by subjects or disciplines of study	62 (36.7%)	56 (33.1%)	51 (30.2%)
Books were arranged according to Dewey Decimal Classification system	-	44 (26%)	125 (74%)
Books were arranged according to Library of Congress Classification system	28 (16.6%)	44 (26	97 (57.4%)
Not sure what the arrangement was	107 (63.3%)	17 (10.1%)	45 (26.6%)

The most significant results as indicated in Table 5.8 were the absence of trained librarians in school libraries. The data indicates that while 81 (47.9%) said the libraries were independent buildings and 32(18.9%) of the respondents said their libraries were rooms in building used for other activities, 91 (57.4%) of the respondents said their libraries had no trained librarian, while 95 (56.2%) said their libraries were attended to by students. Of the respondents 22 (13%) said their libraries were attended by teachers. Another significant result revealed from students' responses was the lack of understanding about the system for the arrangement of books in their school libraries. All 169 respondents who reported having a library in their school indicated that all options for book arrangement given in the questionnaire were used in their school libraries, something that is not possible. The number of respondents who responded to each statement varies. These variations are reflected in column one.

In question 4 students were asked to indicate how frequently they used their school libraries. Of 153 students who responded to this item the results indicated that 38 (24.8%) used the library every day, 69 (45.1%) used the library two to four times a week, 24 (15.7%) used the library once a week, five (3.3%) once every two weeks, eight (5.2%) once a month, seven (4.6%) les than once a month and two (1.3%) indicated that they did not use the library at all.

Question 5 asked the students to respond about whether they received any form of training on how to use the library. Out of 153 respondents 96 (62.7%) indicated that they did not receive any instruction while 57 (37.3%) indicated that they had received some form of instruction. Students were further asked in question 6 to indicate by selecting from four options the forms of IL instruction that they were exposed to. Of the 372 students who responded to this item, 57 (15.3%) indicated that they were given class lectures, 13 (3.5%) were given instruction through leaflets, 73 (19.6%) of the respondents indicated the use of signs and posters placed in the library while 229 (61.6%) indicated that they got instruction as they visited the library.

In connection to forms of instruction they received, question 7 asked the students to

indicate whether they considered that the previous knowledge in using their school libraries was adequate in enabling them to use the university/college library. Out of 664 respondents 548 responded to this item, of which192 (35%) indicated that their previous knowledge in using the library was adequate while 356 (65%) indicated that their previous knowledge was not adequate to enable them to use the university library. Those who indicated that their previous knowledge was not adequate were asked in question 8 to give the reasons that in their views led to that inadequacy. Three major reasons were given; the first reason was the difference and the nature of the facilities available in a university library as compared to school libraries. University facilities were considered to be more advanced and complicated in their use. The reason for the university library being advanced and complicated was mentioned by 191 (40.6%) respondents. The second reason that was mentioned by 144 (30.6%) respondents was the insufficient training that was being provided. The last reason was the total lack of training in using library facilities at secondary school level. This reason was mentioned by 136 (28.9%) of the respondents. Following the explanation about their pre-university knowledge and experience in use of the library and other information resources students were questioned about their experience and knowledge at university level.

5.3.3.3.1   Using information resources at university

In many academic institutions the primary focus of IL endeavour is on the students because they are the ones who are targeted to acquire IL skills. Various initiatives and teaching methods for imparting IL skills as well as assessment or evaluation procedures are all directed at students. In order to identify, access and evaluate the state of the art for forms of library instruction that are in practice, students were asked six questions. Question 9 asked the students if they used the university/college library. The responses revealed that out of 664 respondents, 646 (97.3%) agreed that they used the library while 18 (2.7) said they did not use the library. Students were then asked in question 21 to indicate how frequently they performed various activities involving information seeking. Table 5.9 below shows the frequency of performing those activities within a range of every day to once a month or not performing any at all.

Table 5.9 –   **Students' various information seeking activities by frequency of occurrence**

	Information seeking activities	Frequency							
		Every day	Two to four times per week	Once a week	Once every two weeks	Once a month	Less then once a month	Did not perform	N
1	Using reference material in the library	160 (248%)	326 (506%)	80 (124%)	26 (40%)	29 (45%)	13 (20%)	10 (15%)	N 644
2	Using the catalogue in the library to locate relevant material identified	60 (96%)	161 (257%)	113 (181%)	51 (81%)	56 (89%)	62 (99%)	123 (196%)	N 626
3	Borrowing a book from the library's general collection for personal academic study	57 (87%)	159 (249%)	135 (212%)	94 (147%)	76 (119%)	45 (71%)	72 (113%)	N 638
4	Using the short loan/special reserve/ East Africana collection	49 (79%)	105 (168%)	72 (115%)	34 (54%)	34 (54%)	51 (82)	279 (447%)	N 624
5	Borrowing a book from the library for recreational reading	15 (24%)	72 (113%)	81 (127%)	46 (72%)	66 (104%)	89 (14%)	268 (421%	N 637
6	Reserving a book that was out on loan	11 (19%)	36 (61%)	51 (87%)	29 (49%)	43 (73%)	45 (76%)	374 (635%)	N 589
7	Using a bibliography to find required information	78 (124%)	133 (212%)	77 (123%)	48 (76%)	63 (10%)	77 (123%)	152 (242%)	N 628
8	Using indexes or abstracts to find required information	91 (146%)	136 (219%)	73 (1.7%)	58 (93%)	48 (7.7%)	59 (95%)	157 (252%)	N 622
9	Searching the Internet for required academic information	109 (172%)	209 (331%)	118 (187%)	51 (81%)	55 (87%)	34 (54%)	56 (89%)	N 632
10	Downloading a journal article from online journals	28 (455%)	95 (151%)	85 (135%)	54 (86%)	70 (11.1%)	86 (137%)	210 (334%)	N 628
11	Using CD-ROM in the library to locate required information	15 (24%)	51 (81%)	43 (68%)	40 (63%)	51 (81%)	89 (141%)	344 (543)	N 633
12	Searching the Internet for recreational purposes e.g. Music, sports, fashion and design, celebrities etc.	62 (96%)	115 (177%	116 (179%)	52 (8%)	50 (7.7%)	71 (11%)	182 (281%)	N 648
13	Reading newspapers or magazines for local political, social, and economic information	308 (473%)	166 (255%)	89 (137%)	25 (38%)	22 (34%)	18 (28%)	23 (35%)	N 651
14	Reading newspapers or magazines for international political, social and economic information	256 (408%)	174 (267%)	101 (155%)	24 (37%)	40 (61%)	28 (43%)	20 (3.1%)	N 652
15	Reading newspapers or magazines for local sports and leisure news	257 (399%)	133 (207%)	87 (135%)	32 (5%)	26 (4%)	28 (59%)	71 (11%)	N 644
16	Reading newspapers or magazines for international sports and leisure news	222 (346%)	145 (226%)	87 (136%)	34 (53%)	28 (44%)	49 (76%)	76 (119)	N 641
17	Using e-mail for sending or requesting educational information	62 (97%)	155 (242%)	103 (161%)	45 (7%)	54 (84%)	65 (108%)	153 (239%)	N 641
18	Using e-mail to communicate with friend or relative	80 (124%)	178 (277%)	160 (249%)	54 (84%)	56 (87%)	30 (47%)	85 (133%)	N 643
19	Asking a librarian for help to find information	70 (100%)	130 (202%)	89 (138%)	38 (59%)	84 (13%)	11 (189%)	114 (177%)	N 644

In general as indicated in the table, students had shown a relatively even involvement in 19 information seeking activities However, six activities had significant frequencies.

(i)   Of the 644 students 326 (50.6%) reported that they used reference materials two to four times per week followed by 160 (24.8%) who used them every day, while 10 (1.5%) did not use the reference material at all for the whole month.

(ii)   Of the 624 students only 49 (7.9%) reported that they had used short loan/special reserve/ East Africana collection every day, 105 (16.8%) used this collection two to four times per week while 279 (44.7%) did not use it for the whole month.

(iii)   Out of 589 students 374 (63.5%) reported that for the whole month they did not reserve any a book that was out on loan while 11 (1.9%) reported that every day they reserved a book that was out of loan, while 36 (6.1%) did so two to four times per week.

(iv)   Of the 628 students 28 (4.55%) and 95 (15.1%) downloaded a journal article from online journals every day and two to four times per week while 210 (33.4%) did not do so for the whole month.

(v)   Of the 633 students 15 (2.4%) used CD-ROM in the library to locate required information every day while 51 (8.1%) used CD-ROM two to four times per week. However, 344 (54.3%) did not use CD-ROM for the whole month.

(vi)   Of the 651 students, 308 (47.3%) reported that every day they read newspapers or magazines for local political, social, and economic information 23 (3.5%) while 23 (3.5%) did not do so for the whole month. On the other hand out of 652 students 256 (40.6%) read newspapers or magazines for international political, social, and economic information while 20 (3.1%) did not do so for the whole month.

In question 10 students were asked to rate their knowledge and skills in using a number of information resources as indicated in Table 5.10 below.

Table 5.10   Students' rating of their knowledge and skills in using selected information sources for information search

Information searching activities	Ranking					
	Highest	Higher	Moderate	Lower	Lowest	N
Using the On Line Public Access Catalogue (OPAC)	199 (32.6%)	62 (10.2%)	105 (17.2%)	99 (16.2%)	145 (23.8)	610
Using the card catalogue	171 (27.9%)	84 (13.7%)	121 (10.8%)	106 (17.2%)	130 (21.2%)	612
Using bibliographic tools (Abstracts, indexes etc.)	146 (24.2%)	102 (16.9%)	134 (22.2%)	89 (14.5%)	132 (21.9%)	603
Using reference tools (Dictionaries, Directories, Encyclopaedias)	82 (12.7%)	68 (11.1%)	153 (24.9%)	116 (18.9%)	195 (31.8%)	614
Searching the Internet with various search engines	137 (21.9%)	68 (10.9%)	77 (12.3%)	101 (16.2%)	242 (38.7%)	635
Searching using CD-ROMs and other academic data bases	293 (41.2%)	86 (14.5%)	76 (12.8%)	69 (11.6%)	71 (11.9%)	595

The findings as indicated in Table 5.10 shows that the first three information searching activity ranked highest and higher in terms of students having knowledge and skills for their use is searching using CD-ROMs and other academic databases with 379 (55.7%) of the respondents, secondly is using an On-Line Public Access Catalogue (OPAC) with 261 (42.8%) respondents while the third is using the Card catalogue with 255 (41.6%) respondents. On the other hand the three searching activities ranked lowest and lower are searching the Internet with various search engines that had 343 (54.9%) of the respondents, using reference tools (dictionaries, directories, encyclopaedias) with 311 (50.7%) and using bibliographic tools (abstracts, indexes etc.) with 221 (36.4%).

Students were asked in question 11 to indicate their priority for use of some selected information sources when they worked on their assignments. The results as indicated in Table 5.11 shows that the most preferred source of information were books prescribed by lecturers being indicated as the first priority by 419 (66.6%), followed by handouts and materials given by lecturers that scored 308 (51.1%), and the third one was information located from the Internet that scored 190 (32%).

Table 5.11   Students' priority for use of selected information sources for doing assignments

Information Sources	Priority						N
	1	2	3	4	5	6	
Books prescribed by lecturers	419 (66.6%)	60 (9..5%)	42 (6.7%)	26 (4.1%)	23 (3.7%)	59 (9.4%)	629
Books located through the OPAC/Catalogue	88 (15.1%)	112 (19.3%)	132 (22.7%)	51 (8.8%)	65 (11.2%)	133 (22.9%)	581
Journal articles located in CD-ROM Databases	76 (13.3%)	66 (11.6%)	84 (14.7%)	62 (10.9%)	94 (16.5%)	188 (33%)	570
Information located on the Internet	190 (32%)	103 (17.3%)	129 (21.7%)	56 (9.4%)	41 (6.9%)	75 (12.6%)	594
Handouts and materials given By lecturers	308 (51.1%)	76 (12.6%)	59 (9.8%)	42 (7%)	60 (10%)	58 (9.6%)	503
Past papers and other materials used by past students	133 (22.8%)	72 (12.3%)	61 (10.4%)	59 (10.1%)	83 (14.2%)	176 (30.1%)	484

Students were then asked in question 14 to give their opinions by answering Yes or No if they thought the availability of information from a wide range of sources such as the Internet, CD-ROMs, On-line Databases and printed sources of information created confusion or difficulty for them to comprehend, select and use the information sources appropriately. Of the respondents 496 (74.7%) answered Yes indicating that they were facing difficulty and confusion while 168 (25.3%) answered No. For the respondents who answered Yes, in question 15 they were asked to explain why they faced that kind of difficulties. Only 171 gave their reasons. Two reasons were given; one was the lack of knowledge and skills on how to use those information sources that were mentioned by 98 (57.3%) respondents. The second reason that was mentioned by 73 (42.7%) respondents was insufficient information evaluation skills.

5.3.3.3.2   Skills in the use of the Internet

Information literacy and the Internet are paramount issues in academic librarianship. The Internet is used by students for both academic and non academic activities, for doing assignments as well as for leisure. In this study students were therefore asked a number of questions that related to the use of the Internet. Question 16 asked the students to rate by indicating as "Very useful", "Useful" and "Not useful" the usefulness of the Internet in

meeting their academic information needs. The results showed that 368 (55.4%) rated the Internet as Very useful, 281 (42.3%) as Useful and 15 (2.3%) as Not useful. Further to this question, in question 17 students were asked to identify three search engines that they frequently used. Seventeen search engines were named. The three most used search engines were Google.com that was mentioned by 545(82%), Yahoo.com that was noted by 411(61.8%) and Msn.com that was given by 108 (16.2%). Students were then asked to state the criteria they used in order to determine the credibility of the information they get when searching from the Internet. The answers for question 18 showed that there are three main criteria used. These criteria include:

- Relevance of the information in relation to the subject of the search cited by 368 (55.5%) of the respondents
- Source of information meaning the authority or author of the information cited by 233 (35.1%) of the respondents
- Currency of the publication cited 62 (9.4%) of the respondents

5.3.3.3.3   Computer skills

Information literacy belongs to a 'family' of literacies; one of those literacies is being computer literate. Computer literacy involves basic knowledge on how to use and operate the computer, including switching on and off, word processing and working on a number of software packages. Students were asked in question 22 to indicate their levels of competence in using various computer packages and programmes. Table 5.12 shows student competence in using various computer packages.

Table 5.12   Students' competence regarding selected computer software packages

| Computer software | Level of competence | | | | N |
	Competent and confident	Have some idea but not competent	Unable to use but would like to learn	Unable to use but don't need it.	
Computer operating system (e.g. Windows)	300 (46.9%)	308 (48.1%)	31 (4.8%)	1 (0.2%)	640
A word processing package(e.g. Ms-Word or Word Perfect)	341 (52.6%)	244 (37.7%)	60 (9.3%)	3 (0.5%)	648
A database package (e.g. Access or D/Base)	96 (15.2%)	278 (44%)	250 (39.6%)	8 (1.3%)	632
A graphics programme (e.g. Publisher)	55 (8.7%)	162 (25.5%)	400 (63%)	18 (2.8%)	632
A package for mathematical or statistical analysis (e.g. SPSS or SAS)	37 (5.8%)	171 (26.9%)	373 (58.7%)	54 (8.5%)	635
Spreadsheet (e.g. Excel)	212 (33.2%)	295 (46.2%)	124 (19.4%)	7 (1.1%)	638
Multimedia package on CD-ROM (e.g. Encarta)	61 (9.7%)	156 (24.8%)	367 (58.3 %)	46 (7.3%)	630

The results indicate that a good number of students are relatively competent in computer operating systems and word processing. For computer operating systems, 300 (46.9%) of the respondents indicated that they were competent and confident while 308 (48.1%) had some idea but were not competent. For word processing 341 (52.6%) of the respondents indicated that they were competent and confident while 244 (37.7%) indicated that they had some idea but not competent. However, on the other hand, students indicated weakness in the use of computer databases and packages such as SPSS, SAS and Excel. As shown in Table 5.12 for example, 373 (58.7%) of the respondents indicated that they were not able to use SPSS and SAS packages while 295 (46.2%) were not able to use Excel package. A very high score of 400 (63%) students would have liked to learn to use a graphics programme like Publisher.

Students were asked in question 19 to confirm whether there was need for them to be given special training in two aspects of electronic resources namely; online academic databases and the Internet. For online databases 600 (90.4%) students agreed that there

was need for training, two (0.3%) did not agree and 62 (9.3%) were uncertain. Regarding the need for Internet training 606 (91.3%) responded and were in favour of the training, four (0.6%) were against the training and 54 (8.1%) were uncertain.

Students were further asked in question 20 to rate their priority for training regarding five IL aspects. Table 5.13 indicates the frequency rate for their priority for training in each aspect. Very high scores of 381 (63.8%) and 360 (60.6%) indicated that they needed training in searching for information from electronic sources and knowledge about using electronic sources respectively.

Table 5. 13   Students' priority for training in IL aspects

	IL training aspect	Training priority rating					
		1	2	3	4	5	N
1	Searching for information from electronic sources	381 (63.8%)	83 (13.9%)	48 (8.0%)	32 (5.4%)	53 (89.9%)	597
2	Knowledge about using electronic sources	360 (60.6%)	97 (16.3%)	44 (7.4%)	27 (4.5%)	66 (11.1%)	594
3	Topic analysis	254 (44.9%)	118 (20.8%)	83 (14.7%)	51 (9%)	60 (10.6%)	566
4	Evaluation of information	248 (45.2%)	106 (19.3%)	62 (11.3%)	45 (8.2%)	88 (16.0%)	549
5	Formulation of search strategy and establishing key words	216 (38.6%)	131 (23.4%)	85 (15.2%)	57 (10.2%)	71 (12.7%)	560
6	Knowledge about using print (hardcopy) sources	151 (28.6%)	83 (15.7%)	107 (20.3%)	86 (16.3%)	101 (19.1%)	528
7	Searching for information from print (hard copy) sources	141 (26.8%)	95 (18.1%)	120 (22.8%)	86 (16.3%)	84 (16%)	526

5.3.3.3.4   Awareness of ethical use of information.

Ethical use of information is another important aspect in IL. Information users are supposed to know about and adhere to various conventions required in information use. By using four statements referring to some aspects of the ethical use of information, question 23 crosschecked to evaluate students' awareness of ethical use of information. The results as shown in Table 5.14 indicate that students had good awareness regarding ethical use of information regarding three aspects while they were not as aware about another one. Of the 644 respondents, 182 (27.4 %) responded by "strongly disagree" and 298 (44.9%) for "disagree" responses for a statement stating that "it is not important to purchase computer software if it can be acquired from a friend"; 352 (53%) responded by "strongly disagree" while 211 (31.8%) responded by "disagree" responses for the

statement that "it is not very important to acknowledge other people's work when writing an academic paper". For the statement that "it is important to follow copyright regulations in order to safe-guard other people's intellectual efforts", 373 (56.2%) of the respondents gave a strongly agree response and 167 (25.2%) gave a disagree response. However, 167 (25.2%) of the respondents gave "strongly agree" response and 244 (36.7%) gave an "agree" response in favour of a statement that "because of a book shortage they can photocopy the whole book".

Table 5.14   Students' levels of agreement concerning some ethical aspects of information use

Statements	Level of agreement to the statement				
	Strongly agree	Agree	Neither agree or disagree	Disagree	Strongly disagree
Because of book shortages I can photocopy the whole book.	167 (25.2%)	244 (36.7%)	96 (14.5%)	112 (16.9%)	45 (6.8%)
It is not important to purchase computer software if I can get it from a friend who has got it.	39 (5.9%)	70 (10.5%)	75 (11.3%)	298 (44.9%)	182 (27.4%)
When writing an academic paper it is not very important to acknowledge other people's work.	26 (3.9%)	32 (4.8%)	43 (6.3%)	211 (31.8%)	352 (53%)
It is important to follow copyright regulations in order to safe-guard other people's intellectual efforts	373 (56.2%)	167 (25.2%)	67 (10.1%)	34 (5.1%)	23 (3.5%)

Students were asked in question 33 to rate themselves as information literate or not. The results as shown in figure 5.10 indicate that the majority of the students 555 (86.4%) rated themselves as moderately information literate, 60 (9.3%) as highly information literate and 27 (4.2%) rated themselves not information literate.

**Figure 5.10   Students' rating of their own information literacy
N=642**
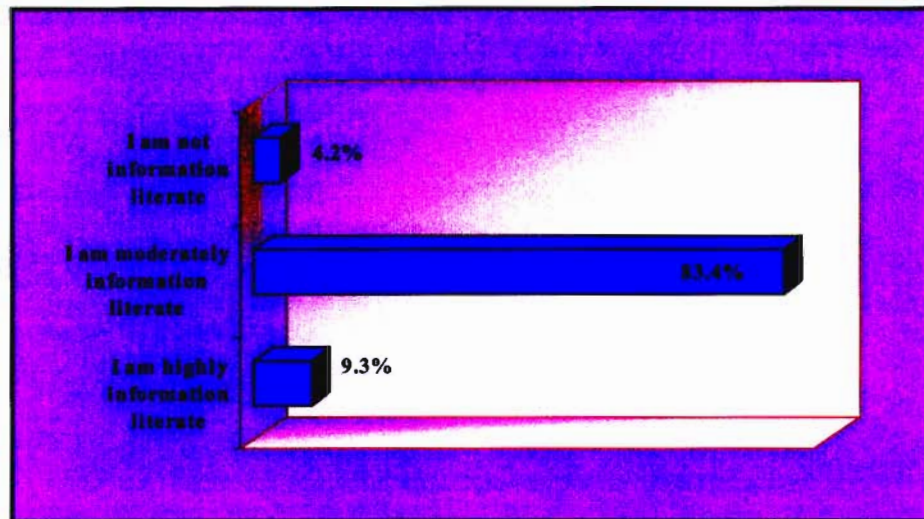
5.3.4   Barriers/obstacles that bear on the effective implementation of IL programmes.

The presence of barriers or obstacles may lead to poor performance or non-implementation of a programme. In order to achieve good performance and effective implementation of any programme planning and research is crucial in order to determine potential barriers or obstacles that may impede the programme. Data presented under this section are on aspects that are considered as barriers to IL programmes. Such barriers include lack of resources, lack of proper policy, lack of understanding of the importance of IL as well lack of pro-activeness among librarians. Data for this section was collected from librarians only.

5.3.4.1 Librarians

Question 21 of the questionnaire asked the librarians to respond by "Yes" or "No" if they thought there were problems that they considered to be barriers that hindered implementation or introduction of effective IL programme(s). Of the respondents 24 (96%) responded with a "Yes" response indicating that there were some barriers while one (4%) responded with a "No" response. Librarians were then asked in question 22 to

rank five options presented to them to indicate the extent to which they considered those barriers as most significant, significant, of low significance, less significance and least significant for effective implementation, introduction or development of IL in their institutions. The results regarding barriers for IL indicate that a lack of understanding of the importance of information literacy by both lecturers and administrators was ranked first as the most significant barrier with 18 (75%) respondents, followed by lack of library IL policy with 10 (43.5%) respondents. The third ranked most significant barrier was the negative attitude held by lecturers and administrators towards librarians and the library in general with 6 (26.1%) respondents. Table 5.15 shows the ranking of those barriers as perceived by librarians.

Table 5.15   Librarians' ranking of barriers that hinder IL programmes

Barrier	Most significant	Significant	Low significance	Less significant	Least significant	N
Lack of understanding on the importance of information literacy by both lecturers and administrators	18 (75%)	2 (8.3%)	2 (8.3%)	1 (4.2%)	1 (4.2%)	24
Lack of a library IL policy	10 (43.5%)	1 (4.3%)	7 (30.4%)	3 (13%)	2 (8.7%)	23
Negative attitude held by lecturers and administrators towards librarians and the library in general	6 (26.1%)	8 (34.8%)	4 (17.4%)	2 (8.7%)	3 (13%)	23
Lack of pro-activeness by librarians	5 (26.3%)	3 (15.8%)	4 (21.1%)	2 (10.5%)	5 (26.3%)	19
Lack of adequate teaching resources	2 (10.5%)	5 (26.3%)	3 (15.8%)	4 (21.1%)	5 (26.3%)	19
Lack of adequate time by librarians	1 (4%)	2 (8%)	4 (16%)	3 (12%)	9 (36%)	19

In question 23 librarians were asked to provide more details explaining the barriers they ranked most significant. Below is a list of some the comments given under different barriers.

1.   Lack of understanding on the importance of IL

   (i)   Most of the lecturers and administrators do not understand about the term information literacy; therefore there is a need for librarians to create awareness among lecturers so that they recognise the importance of information literacy and consequently emphasise it to their students.

   (ii)   Most of the administrators/policy makers do not consider information literacy as necessary for students.

(iii) Academicians place less value on information literacy.

(iv) Administrators think that IL is not important because it can be achieved automatically without learning.

(v) There is an assumption that IL skills can easily be obtained without being taught.

(vi) As most lecturers are not information literate themselves they do not emphasize IL.

(vii) Most lecturers/administrators lack understanding of IL because they are not exposed to IL aspects hence do not recognise its importance.

2. Lack of a library IL policy

(i) Librarians do not take information literacy seriously because of a lack of policy and guidelines that would provide direction for information literacy implementation.

(ii) A university wide policy is needed for information literacy to be accepted and implemented by all stakeholders.

(iii) A policy needs to be reinforced in order to make every person within the university acquire information literacy.

3. Negative attitudes held by lecturers and administrators towards librarians and the library in general

(i) Most administrators regard the library as a book warehouse instead of seeing it as a factory of knowledge. This leads them to disregard libraries as an integral part of academic instructions, in the same view they regard librarians as passive individuals who are not knowledgeable.

4. Lack of proactiveness among librarians

(i) Librarians are not proactive enough otherwise barriers especially those related to negative attitudes would be easily overcome.

5. Lack of adequate time by librarians and students

(i) Time constraint on the part of librarians and an over crowded time table for students.

5.3.4.2 Library Directors and Library Head

Library directors and heads were interviewed in question 4 to explain to what extent lack of IL policy and lack of understanding on the importance of IL by university administrators and some lecturers were seen as barriers that hinder IL development. The interviewees were of the view that lack of policy affects IL because a policy would provide guidelines to be followed for IL implementation purposes. Examples of policies on HIV-AIDS and Gender that are currently implemented in two universities were given to justify the importance of having policies in place.

On the other hand lack of awareness on what IL is as well as its importance for students' academic performance coupled with lack of IL skills among some lecturers were also cited as reasons that hinder IL initiatives.

5.3.4.3 Deputy Vice Chancellors and Faculty Deans

In question 3 of the interview schedule, Deputy Vice Chancellors and Faculty Deans were interviewed to give their comments concerning librarians' claims that administrators and lecturers hinder their efforts to promote IL. Of the 15 interviewees five (33.3%) did not agree with the claim while 10 (66.6%) agreed. The reasons given by those who opposed the claim were:

(i)   University administrators are always supportive of all issues that are geared to improve academic issues including improvement of library services. Hence the spirit is to support and improve library issues.

(ii)   Librarians lack initiative to propose and bring forward ideas for the management to implement.

The concluding remark was for librarians to become more proactive because any drive for change that is related to library issues should come from and be spearheaded by librarians.

On the other hand, reasons that were given to support the claim that administrators and lecturers hinder library initiatives such as IL were as follows:

(i)   The problem is linked to administrative issues where by the library is not taken as an important institution within the university structure. This is also linked to a too small budgetary allocation for the library.

(ii)   Some lecturers lack IL knowledge and skills thus they tend not to appreciate its importance.

(iii) There are some elements of conservatism among old lecturers and administrators whose educational backgrounds did not involve ICT. Such people are difficult to accommodate as regards change, instead they tend to protect their old ways of doing things.

5.3.5 Recommendations for strategies for an IL approach for adoption by higher learning institutions in Tanzania.

In order to introduce and finally implement any new programme, particularly in an academic setting like a university, proper planning on how to go about the implementation of any programme is crucial. Introducing a new programme that is linked to the curriculum requires getting opinions, views and a mandate from various stakeholders, especially the teaching staff. Data under this section is on the views and opinions of the various ways that can be used to introduce and or improve IL programmes. Data reported here are about effective IL teaching methods, suitable staff to be involved in IL curriculum designing and teaching, approaches suitable for IL mainstreaming such as teaching it as stand-alone or integrated and compulsory or optional programme. All three categories of the respondents were involved in answering questions under this section.

5.3.5.1 Librarians

On the issue of what strategies could be applied in order to adopt an IL teaching approach, librarians were asked in question 15 to give their opinions on the recommendation that in order to have an effective IL programme, IL should be taught as part of the mainstream curriculum. They were required to support or reject that proposition by choosing one option from Strongly agree, Agree, Disagree, Strongly disagree and Don't know. The results showed that 18 (72%) supported the

recommendation by choosing a "Strongly agree" response while seven (28%) responded by an "Agree" response. In connection to teaching IL as part of the mainstream curriculum librarians were required in question 12 to rate the effectiveness of four approaches of imparting IL skills. The results as shown in table 5.16 show that formal class teaching as a stand alone course was rated first as most effective with 12 (54.5%) responses followed by formal class teaching as an integrated course with 12 (50%)[8] responses. The least effective approach was using web page tutorials with five (23%) responses.

Table 5.16   Librarians' rating of the effectiveness of IL teaching methods

Method	Most effective	Effective	Fairly effective	Less effective	Least effective	N
Formal class teaching as an integrated course	12 (50%)	8 (33.3%)	2 (8.3%)	2 (8.3%)	-	24
Formal class teaching as a stand alone course	12 (54.5%)	9 (40.1%)	-	-	1 (4.5%)	22
One shot group sessions (teaching a group once)	2 (9%)	2 (9%)	8 (36.4%)	6 (27..3%)	4 (18.2%)	22
Using web page tutorials	1 (4.5 %)	1 (4.5%)	12 (54.5%)	3 (14%)	5 (23%)	22

The librarians in question 16 were required to indicate which category of staff was suitable to take the responsibility for teaching IL on the assumption that the university management approves of the teaching of IL as part of the mainstream curriculum. The majority of the respondents 18 (72%), as indicated in figure 5.11 preferred academic librarians to be responsible for teaching IL. Five (20%) respondents said lecturers and academic librarians should take that responsibility while the option for IL being taught by academic and non academic librarians as well as a combination of lecturers and academic and non academic librarians, was favoured by one (4.0%) each.

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[8] The percentages indicated in Table 5.16 are based on the number of respondents who responded to each type of method. Thus 50% under 'Most effective" is for 12 respondents out of 24 respondents while 54% under 'Most effective' is for 12 respondents out of 22 respondents.

Figure 5.11   Librarians' preference regarding staff for teaching IL

N=25
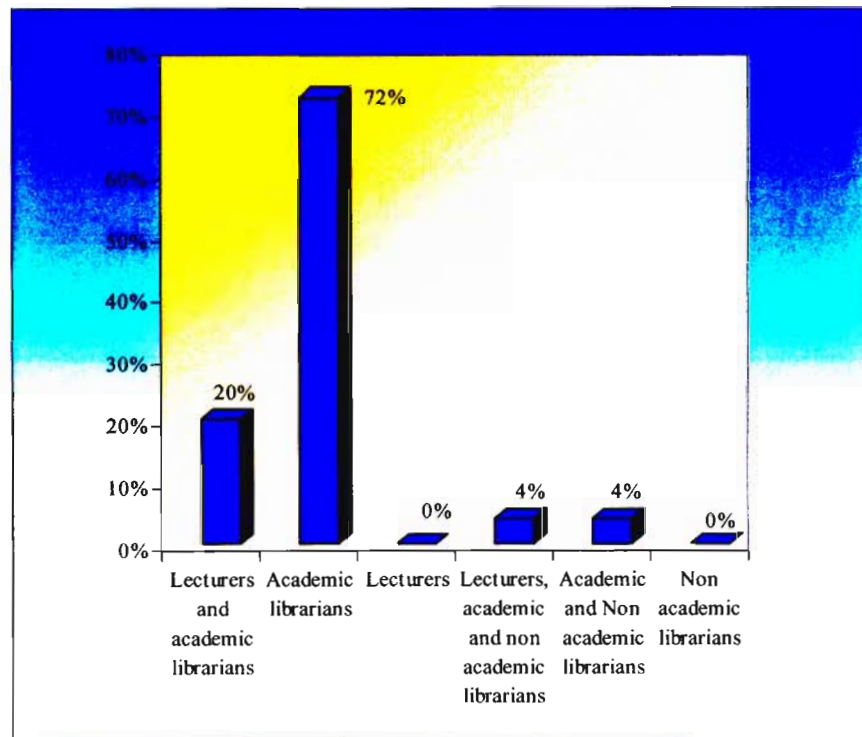
Librarians were asked in question 17 to give their view on how IL should be treated if it were to be taught as part of the mainstream curriculum. Four options were given; the results indicate that 17 (68%) preferred IL being taught as compulsory and credit earning course, four (16%) as compulsory but not credit earning, three (12%) as optional/elective and credit earning and lastly one (4%) opted for optional/elective and not credit earning. Librarians were then asked in question 18 to give reasons for their preferences. The reasons given are shown in Table 5.17

Table 5.17   Librarians' reasons for how IL modules should be treated

Preference for IL	Reasons	Frequency
Compulsory and credit earning: N=17	To create seriousness among students	17 (100%)
	All students need it because it creates skills for learning	15 (88.2%)
	It is important in information age and in the globalisation world	10 (58.8%)
Compulsory but not credit earning: N=4	To create seriousness among students	4 (100%)
	To reduce workload for examinable courses for students	3 (75%)
Optional/elective and credit earning: N=3	Create seriousness among students who want it	3 (100%)
	Let it be optional for those who want it	2 (66.6%)
Optional/elective and not credit earning: N=1	Reduce workload for students	1 (100%)
	Not all students are interested	1 (100%)

In question 19 librarians were asked to choose from two options; teaching IL as an independent course or teaching it as part of another course. In this respect 15 (60%) of the respondents were in favour of teaching IL as an independent course while 10 (40%) were in favour of teaching it as part of another course. Those who favoured teaching IL as part of another course, were asked in question 20 to propose at least two courses or programmes in which IL could be incorporated. Four courses were mentioned namely Communication Skills proposed by eight (80%) respondents, Information Technology proposed by six (60%), Research Methods proposed by two (20%) and Computer Science proposed by one (10%).

5.3.5.2 Library Directors and Library Head

Question 5 of the interview schedule asked Library Directors and a Library head to give their comments as to why librarians have shown a bias in their view that IL activities should be undertaken entirely by librarians alone. All the three respondents concurred with the position provided by librarians that they were the ideal people to teach IL. The reasons they gave were:

(i)   Librarians are experts in the field of information particularly in the effective use of information resources, so they have the skills to teach IL.

(ii)   Most lecturers lack IL skills so they are not in position to teach it.

They however cautioned that despite their expertise and skill in information issues, librarians should update their knowledge and skills both in teaching methodology and IT issues so that they can go with changes and developments that are taking place.

Following the majority of teaching staff, librarians and students indicating that they were in favour of IL being mainstreamed in the curriculum, in question 6 of the interview schedule Directors and Heads of Libraries were asked to respond to as to whether their libraries were ready or not to take on the responsibility of teaching IL as part of the mainstream curriculum.

All three interviewees agreed in principal that mainstreaming IL was the most ideal approach for teaching and imparting IL skills. However, they pointed out that in order to be successful that process should be compatible with the availability of:

    (i)   Adequate numbers of librarians who could conduct the training.

    (ii)   Adequate resources.

With those two remarks, one Library Director agreed that his/her library was in a position to offer IL programme as part of the mainstream curriculum, while one Director and one Library Head said their libraries were not in a position to offer IL in a mainstreamed approach because of the lack of staff who could teach it.

In the interview schedule question 7, Directors and Head of Libraries were asked to give their views regarding teaching IL as compulsory and credit earning or compulsory but not credit earning, as well as teaching it as an independent or part of another course.

The responses given regarding those two aspects were:

    (i)   All the three respondents were of the opinion that making an IL program compulsory and credit earning was more appropriate because that encourages seriousness on the students' part and improves performance because a student as a learner performs better when he/she knows that he/she is to be awarded.

    (ii)   Making IL programme independent is more advantageous in that it allows more room for making the programme exhaustive and comprehensive in terms of time what should be covered.

5.3.5.3 Teaching staff

Like librarians, teaching staff were asked in question 15 to give their opinions on the recommendation that IL should be taught as part of the mainstream curriculum in order to make it effective. Their responses indicate that 130 (50.4%) supported the recommendation by choosing a "Strongly agree" response while 101 (39.1%) responded by an "Agree" response, 26 (10.1%) responded by a "Disagree" response while one (4%) responded with a "Strongly disagree".

For the respondents who responded by "disagree" and "strongly disagree" responses in question 16 they were asked to give reasons for their answers. Only 27 responded to this question whereby 20 (74.1%) said IL was not important in the sense that it is not an academic subject. The other respondents, seven (25.9%) said adding IL to the mainstream curriculum would lead to more of a workload for students. On the aspect of imparting IL skills in question 7, teaching staff were asked to recommend what category of staff is suitable for that responsibility, where and by what method for the most effective teaching. Table 5.18 shows the responses to those aspects.

Table 5.18   Teaching staff's views regarding staff, venue and methods for imparting IL knowledge and skills.

Whom N=158		Where N=56		Method N=72	
Librarian	94 (59.5%)	Library	28 (50%	Lectures	38 (52.8%)
Lecturers	4 (2.5%)	Classrooms/lecture theatres	4 (7.1%)	W/shops	15 (20.8%)
Librarians and lecturers	59 (37.3)	Library and Classrooms	24 (42.9%)	Practical	15 (20.8%)
Lecturers in IT	1 (0.7%)			Web pages	3 (4.2%)
				Leaflets	1 (1.4.%)

As shown in Table 5.18, the majority of teaching staff, 94 (59.5%) were in favour of librarians being responsible for teaching IL. The second preference for staff to be responsible for teaching IL was a combination of librarians and lecturers, favoured by 59 (37.3%).

Teaching staff were also asked in questions 17 and 19 to give their opinions on what category of staff should be responsible for designing IL curriculum and teaching it in case IL was approved to be taught as part of the mainstream curriculum. For staff who should be responsible for designing the curriculum the response was 216 (83.7%) were in favour of librarians and lecturers, 38 (14.7%) in favour of librarians and four (1.6%) in favour of lecturers. On who should teach IL, 126 (49.2%) respondents opted for librarians, 125 (48.4%) opted for librarians and lecturers, while seven (2.7%) opted for lecturers. Question 18 asked the teaching staff to give reasons for their opinions about which staff are suitable for designing the IL curriculum while question 20 asked them to give reasons for staff suitable for teaching IL, the reasons given are shown in Table 5.19.

Table 5. 19   Teaching staff's reasons for preference regarding the staff category suitable for designing IL curriculum and teaching

Staff category	Reasons for suitability to design the curriculum	Frequency
Librarians	Are experts in Information discipline	38 (14.7%)
Lecturers	Have teaching and curriculum design methodology skills	4 (1.6%)
Librarians and lecturers	Creating opportunity to share knowledge and experience	216 (83.7%)
Staff category	**Reasons for suitability to teach IL**	**Frequency**
Librarians	IL falls under their discipline of speciality	62 (24%)
	Skilled in information search and information sources use	64 (24.8%)
Lecturers	Have teaching methods skills while librarians do not	7 (2.8%)
Librarians and lecturers	Opportunity to share knowledge, experience and producing a good programme	125 (48.4%)

According to the results as shown in Table 5.19 above, the majority of teaching staff is in favour of partnerships between them and the librarians for designing the IL curriculum and teaching IL. This is indicated by the rate of responses that are 216 (83.7%) for designing and 125 (48.4%) for teaching that is 0.4% less from 126 (48.8%) who favour librarians for teaching. The main reason for their preference is to share the knowledge and experience of the two categories.

In order to get more views regarding teaching staff's preparedness to be involved in designing and teaching of IL programmes teaching staff were asked in question 21 to respond if they would be willing to be involved in those two activities if they were invited to do so. The response given was that 108 (41%) said they would agree to design, 71 (27.5%) would agree to design and teach, 69 (26.7%) said they would not teach or design while 10 (3.9%) said they would agree to teach. The reasons for their preferences elicited by question 22 are shown in Table 5.20.

Table 5.20   Teaching staff's preference and reasons regarding designing the curriculum and teaching IL

N=258

Preference	Reasons for preference	Frequency
Agree to design	Teaching is more involving	48 (18.6%)
	Librarians and IT experts are the appropriate people for teaching IL	60 (23.3%)
Agree to teach	Lecturers have different approaches for imparting skills	1 (0.4%)
	Librarians are not qualified for teaching	4 (1.6%)
	Students will show more trust and confidence when taught by lecturers than librarians	5 (1.9%)
Agree to design and teach	There are no qualified librarians to teach IL	1 (0.4%)
	Lecturers have skills for both teaching and designing curricula	33 (12.8%)
	Students will become more serious if taught by lecturers	37 (14.3%)
None of these	Overloaded by teaching duties in my speciality	38 (14.7%)
	Not an expert in IL	31 (12.8%)

In question 23 teaching staff were asked to give their views on how IL should be treated in terms of its status in the curriculum if it was to be integrated in the mainstream curriculum. The results showed that 160 (62%) of the respondents were of the opinion that IL should be treated as compulsory and credit earning course, 43 (16.7%) wanted it to be optional/elective and credit earning, 39 (15.1%) as compulsory but not credit earning and 16 (6.2%) wanted IL to be optional/elective and not credit earning. Further to those responses teaching staff were asked in question 24 to give reasons for their options.

For those who opted for a compulsory and credit-earning course their reasons were three. The first reason that was given by 94 (58.8%) respondents was that in offering a compulsory course IL would be taken seriously by both students and staff. The second reason was that IL is important for students in the information and globalised world, a reason that was given by 57 (35.6%) respondents. The last reason was that IL leads to skills to acquire knowledge; this reason had 9 (5.6%) respondents. For optional/elective and credit earning two main reasons were given one was that, it would lead to seriousness for those who are interested in IL. The second reason was that not all students are interested in IL, for that matter, students should be allowed to choose themselves. The response for those two reasons was 32 (74.4%) and 11 (25.6%) respondents respectively.

Reasons for opting for IL to become a compulsory but not credit earning programme were that IL leads to knowledge, a reason that was given by 34 (87.2%) of the respondents. The second reason was to reduce the workload for students, a reason given by five (12.8%) respondents. Lastly, 16 (100%) respondents opted for IL being treated as optional/elective and not credit earning on the basis that not all students need it hence it should be optional for those who want it.

The issue of teaching IL as an independent course or part of another course if incorporated into the mainstream curriculum was also posed to teaching staff in question 25. Under this question 183 (70.5%) were in favour of teaching IL as an independent course while 76 (29.5%) were of the view that IL should be taught as part of another course. Teaching staff who opted to teach IL as part of another course were asked in question 26 to suggest into which university wide courses IL could be incorporated. From the 23 respondents who responded to this question, four courses were suggested namely Communication Skills, Information Technology, Research Methods and Computer Science. Communication Skills was proposed by 13 (56.5%) respondents, Information Technology by 4 (17.5%), Research Methods and Computer Science were proposed by three (13%) each.

5.3.5.4 Deputy Vice Chancellors and Faculty Deans

The Deputy Vice Chancellors and Faculty Deans were asked in question 4 of the interview schedule whether they supported or do not support the proposal that Tanzanian universities should adopt the system of mainstreaming IL in the curriculum as is done in other countries. Of the interviewees 13 (87%) agreed with the proposal while two (13%) were against the proposal.

For those who did not support the proposal the reasons given were:

(i)   Mainstreaming IL will overload the timetable and increase the workload for students.

(ii)   An alternative way of imparting IL to students without making it part of the curriculum should be sought out.

For those who supported the proposal their main reason was that IL skills among students are important for them as learners especially taking into consideration that the learning environment is being dominated by IT. For this reason all students have to acquire and master those skills; a situation that can easily be addressed if IL is mainstreamed. The mainstreaming support was followed by other proposals to complement the approach as follows:

(i)   Librarians should cooperate with teaching staff

(ii)   Librarians should upgrade their education and other IT skills

(iii)   Teaching staff should be sensitised about IL and be trained in some aspects of IL

(iv)   Librarians should not be marginalized instead they should be recognised as important stakeholders for facilitating teaching and learning in the university.

In question 5 of the interview schedule, Deputy Vice Chancellors and Faculty Deans were asked to give their views on two aspects. The first issue was teaching IL as compulsory and credit earning or as compulsory but not credit earning, while the second was teaching IL as an independent course or teaching it as part of another course. The

interview results as shown in figure 12 below shows the five preferences as per Deputy Vice Chancellors and Faculty Deans.

Figure 5.12   Preferences on how to teach IL as indicated by Deputy Vice Chancellors and Faculty Deans

N=15
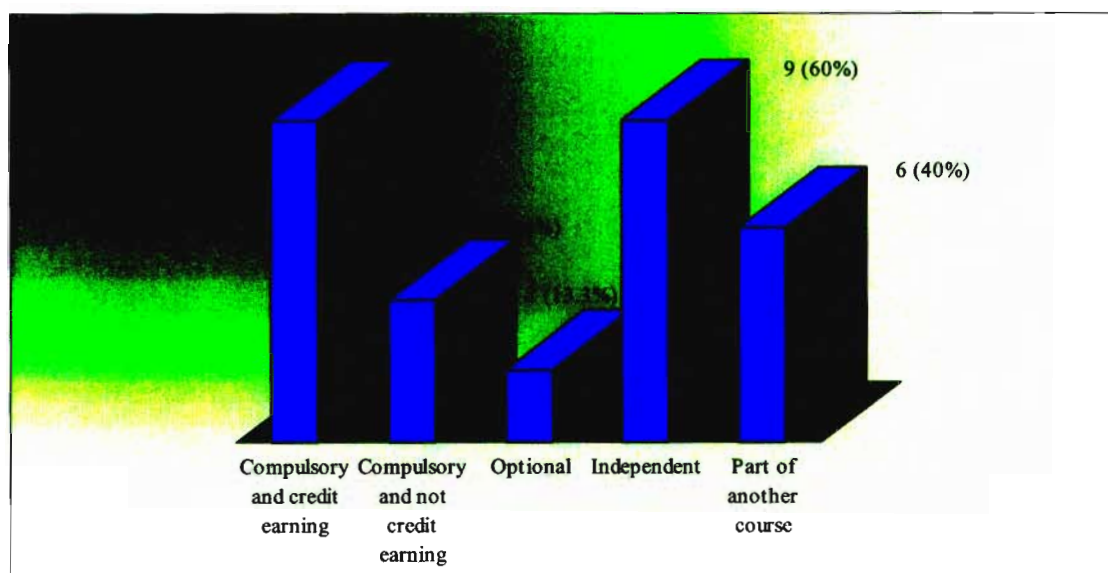
Some reasons were presented to support the preferences given by the interviewees.[9]

(i)   Compulsory and credit earning. N= nine

- IL is important for all students and the only way to make them attend and acquire the skills is to make it compulsory - nine (100%)
- Making IL a credit earning programme adds more weight for students to take it seriously - seven (77.7%)

(ii)   Compulsory and not credit earning. N= four

IL is not a core subject for any degree programme, it is just a supporting programme, for this reason it can be compulsory for students in order to gain skills however, it should not count for the final assessment of the degree thus it should not be credit earning – four (100%)

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[9] The percentages indicated for each reason are based on the number of respondents who responded for each IL teaching preference indicated in table 5.12.

(iii)   Optional N = two

As a support programme IL should be taught as an optional programme. The assessment should be done on pass/fail basis, thus no credit should be awarded – two (100%)

(iv)   Independent course N = nine

Making IL an independent programme would allow:

- Adequate teaching time – four (44.4%)
- Broader coverage thus teaching it more comprehensively - five (55.5%)

(v)   Part of another course N = six

In order to avoid:

- Timetable overload – three (50%)
- More workload for students - five (83%)

Question 6 of the interview schedule for Deputy Vice Chancellors and Faculty Deans asked them if they would support or not support a detailed proposal presented to them for mainstreaming IL into the curriculum.

The interview revealed that 13 (86.6%) agreed that they would support the mainstreaming proposal only after reading it through in order to determine its details and consider how to implement it. Two (13.3%) of the interviewees said they would not support it for two reasons:

- Mainstreaming IL will create congestion in the timetable
- Mainstreaming IL will increase more work load for the students

5.3.5.5 Students

Regarding how IL could be effectively implemented university wide, students were asked in question 26 to give their opinions on the proposition that in order to have an effective IL programme, IL should be taught as part of the university mainstream curriculum. The result indicated that 319 (50.2%) responded with a "Strongly agree response", 251 (39.5%) responded with an "Agree" response, 39 (6.1%) responded with a "Neither agree nor disagree" response, 26 (4%) gave a "Disagree" response and 1 (0.2%) gave a

"Strongly disagree" response. The respondents who responded with a "Disagree" and "Strongly disagree" and "Neither agree or disagree" response, in question 27 were required to choose from three statements that applied to their answers. Of the respondents 36 (55%) opted for a statement stating that the timetable had too many subjects already, 24 (36%) opted for a statement that IL is not an academic subject, while six (9%) were in favour of a statement that IL is not important. In question 28 students were asked to give their views regarding the category of staff that they considered being appropriate for teaching IL if approved to be taught as part of the mainstream curriculum. The first preference for staff to be responsible for teaching IL as indicated in figure 5.13 below was lecturers and academic librarians with 317 (48%) respondents, followed by librarians with 220 (33%) respondents.

Figure 5.13   Students' preferences for staff category to teach IL

N=664
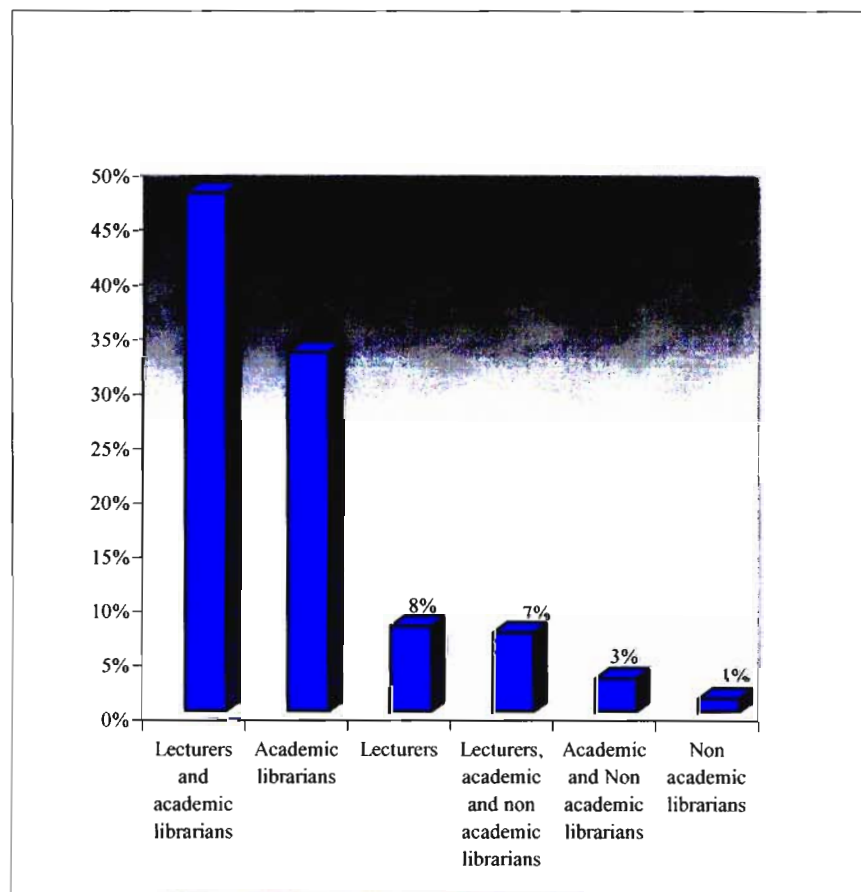
Students were then asked in question 29 to give their views on how IL should be treated if made part of the mainstream curriculum. The results as shown in column 1 of Table 5.21 showed that 370 (57.2%) were of the opinion that IL should be treated as compulsory and credit earning course, 128 (19.8%) wanted it to be compulsory but not credit earning and 118 (18.2%) wanted IL to be optional/elective and credit earning while 31 (4.8%) wanted IL to be optional/elective and not credit earning.

Question 30 asked the students to give their reasons for their answers for question 29. Their reasons for each preference as indicated in question 29 are presented in column 2 of Table 5.21.

Table 5.21   Students' preferences and reasons concerning how IL modules should be treated

Preference for IL	Reasons	Frequency
Compulsory and credit earning: N=370	Students will become serious about it	365 (98.6%)
	It is important for all students	345 (93.2%)
	Creates skills to use the library	300 (81%)
	It is important for project writing	250 (67.5)
Compulsory but not credit earning: N=128	To reduce workload for examinable courses	112 (87.5)
	It is important in the information technology world	120 (93.7%)
Optional/elective and credit earning: N=118	Students be given opportunity to study what they want	112 (94.9%)
	Those opting to do it should be awarded a mark	95 (80.5%)
Optional/elective and not credit earning: N=31	Reduce workload to attend compulsory classes	25 (80.6%)
	Not all students are interested in IL	20 (64.5%)
	It is not important	15 (48.3%)

In question 31 students were asked whether IL should be taught as an independent course or part of another course if incorporated into the mainstream curriculum; 450 (69.3%) of student respondents were of the view that IL should be taught as an independent course while 199 (30.7%) wanted it to be taught as part of another course.

5.4 General comments by respondents regarding IL in an academic context

In all questionnaire schedules for all categories of the respondents the last question (questions 24, 27 and 34 for librarians, teaching staff and students respectively, required the respondents to give their general additional views about IL within the academic context. The responses given were mainly centred on how IL should be treated in terms of its delivery and on how IL knowledge and skills among students can be enhanced. The following is the summary of those responses:

5.4.1 Librarians

All 25 librarians responded to this question. Their opinions were as follows:

- (i) IL should be incorporated in the university mainstream curriculum (10,40%).
- (ii) IL should start to be introduced right from primary school level (6,24%).
- (iii) Librarians are the experts in IL they should therefore take the responsibility of teaching it (4, 16%).
- (iv) Orientation week can be used effectively to undertake the teaching of IL (3, 12%).
- (v) IL should be an optional course that students be allowed to register for at their own will (2,8%).

5.4.2 Teaching staff

Of the teaching staff respondents, 236 (91.5%), gave their responses to question 27 while 22 (8.5%) did not respond. The summary of their responses is as follows:

- (i) IL should be mainstreamed in the main university curriculum and be taught as compulsory course (60, 25.4%).
- (ii) IL should be taught as a subject at the beginning of the first semester (37, 15.6%).
- (iii) The Ministry of Education should mainstream IL in schools' curriculum (33, 13.9%).
- (iv) The orientation week should be used effectively to maximise imparting IL skills (29, 12.2%).

(v)   IL should be treated as compulsory and credit earning course, as this will create more seriousness about the course (23, 9.7%).

(vi)   The university should improve the availability of resources such as computers and the Internet connectivity speed should be improved. This would enable students to have adequate opportunity to learn practically and use online sources (20, 8.4%).

(vii)   Instead of teaching it as core or independent course, IL should be taught as a topic in Information Technology or Communication Skills course (19, 8.05%).

(viii) The university should consider training librarians to teach IL because they are people with skills in information skills (15, 6.3%).

5.4.3   Students

Of the students, 486 (73.2%) gave their responses to question 34 while 178 (26.8%) did not respond. The summary of their responses is as follows:

(i)   IL is very important for all students in their academic work; it should therefore be compulsory for all students (114, 23.4%).

(ii)   IL should be taught from school levels as a general study subject (96, 19.7%)

(iii)   Universities' IT facilities are not good. Computers are not adequate and the Internet is very slow. Students can learn IL much better if these facilities are improved (48, 9.8%).

(iv)   In order to reduce the workload IL should not be introduced as a new course instead it should be part of another course such as Communication Skills computer studies (39, 8.0%).

(v)   IL should be taught as an optional course because some students are familiar with it so they would not be overstrained in taking it (34, 6.9%)

(vi)   Other people who have knowledge in IL should be requested to assist in teaching IL instead of placing the workload on librarians and lecturers (30, 6.1%).

(vii)   IL should be taught as an independent credit-bearing course so as to make students take it seriously for fear of failing it (29, 5.9%)

(viii)   IL is important for all people therefore it should also be extended to even non-students as well (26, 5.3%).

(ix)   Instead of teaching IL as a core course it should be taught as as a practical subject connected to Computer Studies (26, 5.3%).

(x)   IL literacy should be an added credit for university admission (25, 5.1%)

(xi)   It is not necessary to mainstream IL in the curriculum if the orientation week can be used efficiently (19, 3.9%).

5.5   Data from observation

As mentioned under section 4.2.1.2 an unstructured observation schedule was used as a supplementary instrument for data collection to complement the questionnaires. Four main areas were observed namely library collections, electronic facilities, signage and the general students' search behaviour. On the library collections, the researcher was specifically interested to find out the availability of reference and bibliographic tools.

5.5.1   Library collections

The collections for all universities under study have been highlighted in chapter 2 under section 2.10.1.4.2 for SUA, section 2.10.2.3.4.1 for UDSM, section 2.10.3.2.2 for IUCO and section 2.10.4.3 for SAUT. In general the study found that the libraries had relatively adequate book collections that included reference books such as dictionaries and encyclopaedias. However, the study found that some of the libraries lacked some important bibliographic tools as part of the collection. Two libraries did not have abstracts while one did not have indexes.

5.5.2   Electronic facilities

The study found that the four libraries had varying levels of access and use of electronic facilities. The study found the following:

(i)   All universities have access to the Internet so both students and staff can access on-line journals and other databases that are subscribed or provided for free. However, one library was not connected to the Internet.

(ii)   Two libraries did not have CD-ROMs

(iii)   Only two libraries had OPACs; the other two used card catalogues.

(iv)   In all four universities the number of PCs placed where students could access them for Internet surfing and CD-ROM use were very few when compared with the number of students.

5.5.3 Signage

The study found that;

(i)   All libraries had a number of posters placed in different areas within the library. However, these posters were not directly intended to provide instructional directives to IL. They were just posters on various academic, social and political issues such as HIV-AIDS, study and scholarship advertisements, gender, business, vacancies etc.

(ii)   All libraries had shelf labels indicating the sequence of the books and journals on those particular shelves.

5.6   Summary

This chapter presented findings of the study. The findings show that:

1.   All four libraries provide some forms of IL instructions to enable their users to use information resources effectively. The instructions are mainly given through orientation and stand alone programmes.

2.   IL activities are carried out by librarians only; teaching staff are not involved. IL sessions are attended by students on a voluntary basis while others are undertaken by students after being requested by some lecturers for specific programmes. The areas that are covered in the programmes include information search skills, use of library resources, information evaluation and citation and referencing.

3.   Evaluation and assessment of IL activities is minimal. This is indicated by a small percentage, eight (32%) of respondents who agreed that there was an evaluation and assessment system. Feedback evaluation form was the most method used to assess IL programme another method was Examination and assignment.

4.   The most significant stage for assessment as indicated by four (50%) of the eight respondents (librarians) is during the programme, and the main IL activity being

assessed/evaluated is students' skills gained during the programme mentioned by seven (87.5%) respondents.

5. The majority of the teaching staff, 180 (69%), is aware of the IL training offered by libraries for library users. Of the teaching staff 244 (94.6%) acknowledge that effective use of library and its resources contributes positively to students' academic performance.

6. The majority of the students, 646 (97.3%), use the library. Regarding IL training offered by the library, 336 (51%) were aware of it while 328 (49%) were not. On the other hand, students who were aware of IL training 148 (47%) said the training was effective while 164 (53%) said it was not.

7. Effective implementation of IL is affected by a number of factors including lack of formalised programmes, inadequate time, inadequate resources and inactiveness among librarians in promoting IL.

8. Of the students 649 (97.7%) confirmed that their lecturers required them to use the library. However, the ratings by teaching staff for searching and discovering information sources, apart from the ones they prescribed, were moderate by 117 (45.3%). Students' ratings for the requirement by lecturers for students to use additional information sources apart from those prescribed by them were also moderate at 272 (41.9%).

9. The majority of teaching staff, 207 (84.1%), prefer letting their students go to the library on their own to consult the librarians as their method of exposing their students to the information resources available in the library. That method is favoured compared to other alternatives such as taking their students to the library themselves or going to the library and asking the librarians to help the students.

10. The use of active learning and student centred teaching methods among lecturers, are minimal, instead the lecture method is the main method employed for teaching in all four universities. This is largely caused by lack of modern teaching tools, such as computers, large number of students per class and inadequate library resources such as books and journals.

11. The highest rating by librarians for students' ability in using library resources and information search skills was moderate with 14 (56%). The three areas considered

as the weakest IL aspect among students as observed by librarians were: formulation of search strategy and establishing key word (21 (27.3%), searching for information from electronic sources 16 (20.8%) and topic analysis 31 (16.9%).

12   Of the teaching staff 180 (69.8%) confirmed that students had inadequate skills in aspects of certain IL. The three IL areas considered by teaching staff as weakest among students are searching for information from electronic sources by 167 (21.1%), formulation of search strategy and establishing key words by 140 (18.1%) and evaluation of information by 128 (16.5%).

13   The three most problematic IL areas according to teaching staff are searching for information from electronic sources 67 (21.1%), formulation of search strategy and establishing key words 140 (18.1%) and evaluation of information 128 (16.5%).

14.   Teaching staff's rating for students' competence in three IL aspects was average for use of range of information sources by 137 (53.1%) respondents, use of up to date sources by 114 (44.2%) respondents and critical evaluation of information by 116 (45%) respondents. For ethical use of information the highest rating was poor with 109 (42.2%) of the respondents.

15.   Regarding differences in IL knowledge and skills among students of different levels, 184 (71.3%) of the teaching staff confirmed the existence of such differences in the sense that senior students are better compared with junior students. In terms of being information literate, the highest number of teaching staff, 120 (46.5%), rated the students as moderate.

16.   Regarding information about school libraries indicated that 459 (74.5%) of the students said their schools had no libraries while 169 (25.5) had libraries. Of the 81 (47.9%) said their libraries were an independent building while 32 (18.9%) said the libraries were single rooms in buildings used for other activities. Of the students 91 (57.4%) said their libraries had no trained librarians, while 95 (56.2%) and 22 (13%) said students and teachers attended their libraries respectively.

17.   Students' usage of the school library was fair as 107 (69.9%) used the library between every day and two to four times per week. However of 169 students, 96 (62.7%) did not receive any instruction while 57 (37.3%) received some form of

instruction. The forms of instruction that were offered were by leaflets, 13 (3.5%), class lectures, 57 (15.3%), signs and posters placed in the library 73 (19.6%) and instruction as students visited the library 229 (61.6%).

18.	The majority of students, 356 (65%), reported that the knowledge in enabling use of the library at school level was inadequate in enabling them to use the university library effectively while for 192 (35%) the knowledge was adequate. The reasons for the inadequacies were:

(i)	Insufficient training that was provided by 144 (30.6%)

(ii)	Complete lack of training in using library facilities by 136 (28.9%)

(iii)	University library being advanced and complicated compared to school library by 191 (40.6%)

19.	In general, students have shown a relatively even involvement in various information seeking activities. Of the students, 646 (97.3%) reported that they used the university library. For some selected information seeking activities the most significant activity performed by students was the use of reference materials, reported to have been used by 326 (50.6%) two to four times per week. Beside the use of reference materials students showed significant use of newspaper and magazines for different purposes as follows: reading newspapers or magazine for international political, social and economic information by 256 (40.6%); reading newspapers or magazine for local sports and leisure news by 257 (39.9%); reading newspapers or magazine for international sports and leisure news by 222 (34.6%). Students also showed significant usage of the Internet for searching academic information with 209 (33.1%).

20.	Students showed poor involvement in some important information seeking activities. Students indicated that they did not get involved at all in the following: using the short loan/special reserve/ East Africana collection, 279 (44.7%); reserving a book that was out on loan, 374 (63.5); using a bibliography to find required information, 152 (24.2); using CD-ROM in the library to locate required information, 344 (54.3), and downloading a journal article from online journals, 210 (33.4%).

21. The three information sources ranked highly in terms of students' knowledge and skills on how to use them are searching using CD-ROMs and other academic databases with 379 (55.7%); using an OPAC 261 (42.8%), and using the catalogue 255 (41.6%). On the other hand the three searching activities ranked lowest and lower are searching the Internet with various search engines 343 (54.9%) of the respondents, using reference tools (dictionaries, directories, encyclopaedias) 311 (50.7%) and using bibliographic tools (abstracts, indexes etc.) 221 (36.4%).

22. Students' three most preferred source of information when working on assignments are books prescribed by lecturers by 419 (66.6%), handouts and materials given by lecturers by 308 (51.1%) and information located from the Internet by 190 (32%).

23. The majority of the students 368 (55.4%) considered the Internet as a very useful tool for academic and non-academic activities. In using the Internet the three most used search engines are Google.com by 545(82%), Yahoo.com by 411(61.8%) and Msn.com by 108 (16.2%). On the other hand, 496 (74.7%) indicated that the availability of information in a wide range of sources created difficulty and confusion for them while 168 (25.3%) said they do not face difficulties. Two reasons that lead to student's difficulties were lack of knowledge and skills on how to access some information sources by 98 (57.3%), and insufficient information evaluation skills by 73 (42.7%). On special electronic training 606 (91.3%) preferred Internet training while four (0.6%) did not prefer it and 54 (8.1%) were uncertain. For online databases 600 (90.4%) students agreed that there was need for training, two (0.3%) did not agree and 62 (9.3%) were uncertain

24. Competence among students in the use of computer packages was relatively good. In computer operating system 300 (46.9%) indicated that they were competent and confident while 308 (48.1%) had some idea but were not competent. For word processing 341 (52.6%) indicated that they were competent and confident while 244 (37.7%) indicated that they have an idea but were not competent. However, students indicated weakness in the use of computer databases and

packages such as SPSS, SAS and Excel. Of the respondents 373 (58.7%) indicated that they were not able to use SPSS and SAS packages while 295 (46.2%) were not able to use the Excel package.

25. The three IL aspects rated as first priority for training were searching for information from electronic sources 381 (63.8%), knowledge about using electronic sources 360 (60.6%), topic analysis 254 (44.9%).

26. Students showed good awareness of the ethical use of information in three aspects but not in one respect. Of the respondents182 (27.4 %) responded with "strongly disagree" and 298 (44.9%) for "disagree" to its not being important to purchase computer software if it can be acquired from a friend; 352 (53%) responded by "strongly disagree" while 211 (31.8%) responded by "disagree" for acknowledging other people's work when writing an academic paper. For copyright regulations safe-guarding other people's intellectual efforts, 373 (56.2%), of the respondents gave a strongly agree response and 167 (25.2 gave a disagree response. However, 167 (25.2%) of the respondents gave "strongly agree" response and 244 (36.7%) were in favour of photocopying the whole book because of book shortages.

27. The majority of students 555 (86.4%) rated themselves as moderately information literate, while 60 (9.3%) rated themselves as highly information literate and 27 (4.3%) as not information literate.

28. The majority of librarians 24 (96%) indicated that there are some barriers that hinder effective implementation of IL programmes. The main issues cited as barrier were:

- Lack of understanding on the importance of information literacy by both lecturers and administrators 18 (75%)
- Lack of IL policy with 10 (43.5%)
- Negative attitudes held by lecturers and administrators towards librarians and the library in general with six (26.1%).

Along the same lines, library directors and the library head also agreed that lack of IL policy and lack of understanding on the importance of IL hinder IL initiatives.

29. The majority of Deputy Vice Chancellors and Faculty Deans, 10 (66.6%), agreed that some administrative tendencies, personal inclinations such as marginalizing the library, conservatism among some lecturers and administrators and lack of IL and IT skills among lecturers and administrators contributed to poor attendance and a lack of consideration of library issues such as IL. On the other hand those who opposed the claim, five (33.3%), said university administrators were supportive of various initiatives that improved academic issues such as improving library services. Instead librarians were blamed for not being proactive in promoting their activities.

30. The majority of librarians, 18 (72%), supported the "strongly agree" response regarding the proposition to integrate IL in the mainstream curriculum. As regards to effective IL teaching approach, formal class teaching as a stand alone course was rated first by librarians as the most effective approach with 12 (54.5%) responses, followed by formal class teaching as an integrated course with 12 (50%) responses. The least effective approach was using web page tutorials with 5 (23%) responses.

31. The majority of librarians, 18 (72%), were in favour of IL being taught by librarians. The mode of mainstreaming IL preferred by librarians was teaching IL as a compulsory and credit earning course by 17 (68%). Other preferences were; compulsory but not credit earning by four (16%), optional/elective and credit earning by three (12%) and optional/elective and not credit earning by one (4%). The main reasons for the first preference were to create seriousness among students and to provide knowledge and skill to all students because of it importance

32. The majority of librarians, 15 (60%), prefer teaching IL as an independent course while 10 (40%) wanted it to be part of another course. The course that were considered for IL inclusion were Communication Skills by eight (47%) respondents, Information Technology by six (35.3%), Research Methods by two (11.8%) and Computer Science proposed by one (5.9%).

33. Both the two library directors and a library head agreed that it was ideal for IL to be taught as part of the mainstream curriculum and as an independent course. The

reasons for choosing those two options were to bring a sense of seriousness about and broader coverage of IL. However, only one library was ready to offer an IL programme as part of the mainstream curriculum. The reason given for not being able to offer IL as part of the curriculum was the inadequate number of librarians to undertake the task.

34.   The majority of teaching staff, 130 (50.4%), supported by a strongly agree response the recommendation to mainstream IL in the curriculum; 101 (39.1%) supported an agree response, while 26 (10.1%) and one (4%) gave disagree and strongly disagree responses respectively. The reasons for disagreements were that IL is not important 20 (74.1%) and mainstreaming IL in the curriculum would involve more of a workload for students.

35.   Teaching staff's preference for the staff category that should be responsible for designing IL curriculum and teaching IL, indicated that the majority, 216 (83.7%), preferred a combination of librarians and teaching staff to design programmes while of the teaching 127 (49.2%) were for librarians and 124 (48.1%) were for librarians and teaching staff. The reasons given to support the preferences were that, the majority of teaching staff preferred a combination of teaching staff and librarians to design and teach in order to create an opportunity for sharing knowledge and experiences between the two categories.

36.   Teaching staff's preparedness to be involved in either teaching or designing IL curriculum shows that 108 (41%) would be prepared to design, 71 (27.5) would be ready to teach and design, while 69 (26.7%) said they were not prepared to get involved in either of the two IL activities.

37.   The majority of teaching staff, 160 (62%), were in favour of IL being taught as compulsory and credit earning course; 39 (15.1%) preferred IL being compulsory but not credit earning; 43 (16.7%) favoured an optional/elective and credit earning option while the optional/elective and not credit earning choice was opted for by 16 (6.2%). The reasons for those who preferred a compulsory option were to create seriousness among students and staff and the subsequent importance given to IL for students. For the option/elective and no credit, the reasons were to reduce workload among the students and that not all students needed it.

38. On the issue whether IL should be taught as an independent course or part of another course, 183 (70.5%) of the teaching staff were in favour of teaching IL as an independent course while 76 (29.5%) were in favour of teaching it as part of another course. As to which university wide courses IL could be incorporated in, four courses were suggested namely Communication Skills proposed by 13 (56.5%) respondents, Information Technology by four (17.5%), Research Methods and Computer Science proposed by three (13%) each.

39. Of the majority of Deputy Vice Chancellors and Faculty Deans,13 (87%) supported the proposal for Tanzanian universities to adopt the system of mainstreaming IL in the curriculum. Two (13%) were against the proposal on the basis of avoiding overloading the timetable and the students. The reason for supporting mainstreaming IL, was for its importance among students as learners in the IT dominated environment.

40. The majority of Deputy Vice Chancellors and Faculty Deans, 9 (60%) supported IL becoming a compulsory and credit earning, four (26.6%) as compulsory but not credit earning, two (13.3%) as optional, nine (60%) wanted it to be treated as an independent course while six (40%) preferred it being part of another course.

41. The reasons for Deputy Vice Chancellors and Faculty Deans preferences for a compulsory course were to allow all students to gain the skills acquired through IL and creating seriousness. On the other hand IL was preferred as an optional programme because it is seen as a supportive rather than core. For being an independent course the reasons were to allow adequate teaching time and broader coverage. Avoiding timetable over load and a heavy workload for students was mentioned as reasons for preference for IL being part of another programme.

42. The majority of Deputy Vice Chancellors and Faculty Deans, 13 (86.6%), agreed that if approached with a detailed proposal to mainstream IL, for approval, they would support that proposal subject to studying its details and considering how it can be best implemented.

43. The majority of the students, 319 (50.2%), and 251 (39.5%), supported by "Strongly agree" and "agree" respectively for IL being taught as part of the university mainstream curriculum. The remaining students, 65 (11.2%) who

responded by a "Neither agree nor disagree" and "Disagree" gave reasons for their answers as avoiding time table overload, IL not being an academic subject and not being important.

44.   The majority of students, 317 (47.7%), preferred IL being taught by lecturers and librarians while 220 (33.1%) preferred IL being taught by librarians. In terms of how IL should be treated as part of the mainstream curriculum, majority of students, 450 (69.3%), wanted it to be an independent course while 199 (30.7%) wanted it to be part of another course. Again the majority 370 (57.2%), preferred IL being treated as compulsory and credit earning course, 128 (19.8%) wanted it to be compulsory but not credit earning and 118 (18.2%) wanted IL to be optional/elective and credit earning with 31 (4.8%) wanting IL to be optional/elective and not credit earning.

45.   The reasons given by students for making IL compulsory were creating seriousness among students, its importance for all students and the advantage of it leading to the acquisition of skills in using the library and for project writing. Reasons for preferring IL being optional or elective and not credit earning were to allow students to study what they wanted and avoiding more workload. Some students said IL was not important.

46.   The four libraries had varying level of resources. Two out of the four libraries involved in the study did not have abstracts and indexes as bibliographic tools in their collection, two libraries did not have CD-ROMS, and only two libraries had OPACs while the other two used card catalogues. Although all four universities were connected to the Internet, one library was not connected to the Internet. In all four universities the number of PCs that could be accessed by students was very few compared to the number of students.

47.   Observation from all four libraries has shown that the use of leaflets, brochures, signage and posters for imparting and disseminating IL was poor.

Chapter Six

Interpretation of the research findings

6.1 Introduction

In chapter five data analysed from findings collected from the study were presented. In this chapter an interpretation and discussion of those findings is given. The main purpose of this chapter is to explore the meaning of the findings that would provide the solution of the research problem and support the conclusion of the study (Leedy 1989). The discussion is intended to synchronise the research problem, the purpose, the objectives of the study and the reviewed literature.

The overall purpose of the study as indicated under section 1.4.1 was to investigate the status and practices of IL in Tanzania's four major universities in order to establish the basis for strategies that could be adopted to introduce and develop effective IL programmes in higher learning institutions in Tanzania. The study involved the identification, assessing and evaluation of the state of IL in relation to the types and forms of instruction used, teaching methods and other practices used by lecturers that could be considered to promote or impede IL. The study was also involved in assessing the knowledge as well as the competence and incompetence regarding IL skills of students as well as identifying aspects that were perceived as obstacles or barriers that impede IL practices in the universities studied. Finally, the study was engaged in gathering views and opinions from various university stakeholders including DVCs and Faculty Deans (as administrators), teaching staff, librarians and students, on how IL programmes could be introduced and effectively implemented university wide.

The specific objectives were:

(i)   To identify, assess and evaluate the types or forms of library instruction (as an aspect of IL) that are currently in practice within these institutions

(ii)   To identify teaching practices among lecturers so as to determine their strengths and or weakness regarding the promotion of IL skills among students

(iii)   To identify areas of weakness and strength concerning IL skills

among students

(iv)   To identify obstacles or barriers that bear on the effective implementation
         of IL programmes

(v)   To propose a suitable IL programme approach that can be adopted by higher
         learning institutions in Tanzania.

For the sake of clarity the presentation in this chapter follows the order and themes of the
objectives as presented in chapter five.

6.2   The demographic characteristics of the respondents

The demographic characteristics of the respondents were not intended to be part of the
objectives of the study; however, the researcher thought that presenting the characteristics
of the respondents would portray the context of the study and help to create confidence in
the reliability of the responses and data collected from them. Babbie and Mouton
(2001:236) point out those respondents should be competent and able to give their
answers reliably. The demographic background of the librarians and teaching staff
respondents as presented under section 5.2.1.1 and 5.2.1.2 for librarians and teaching
staff included rank/designation, gender, highest academic qualification and years of
working.

6.2.1   Librarians

Out of 25 librarians 13 (64%) were between the rank of Associate Professor and
Librarian. In terms of education 22 (88%) had an academic level of a PhD or a Masters
while 13 (62%) had worked within a range of 11 and 16 years. This indicates that these
respondents had good academic levels and adequate work experience to enable them to
perform their duties efficiently.

6.2.2   Teaching staff

Teaching staff were drawn from all faculties and departments, their academic rank ranged
from Full Professor to Assistant Lecturers, of which 124 (51%) were between the rank of
Full Professor and Senior Lecturer. Their work experience ranged from one year to over

16 years and 157 (61%) have work experience of between 11 years and above 16 years. This also indicates that respondents from teaching staff were generally senior academicians with adequate experience in teaching.

6.2.3 Students

The student population were also drawn from different programmes and years of study, gender, faculty, university enrolment status and the type of schools they attended as shown under section 5.2.1.3. The variety of backgrounds from which the student respondents were drawn is also satisfactory in that these various groups were represented in the sample.

6.2.4 Deputy Vice Chancellors, Faculty Deans, Library Directors and Library Head

As shown under 5.2.2 the study also involved as interviewees, three Deputy Vice Chancellors-Academic, 12 Faculty Deans, two Library Directors and one Library Head. Out of 18 interviewees, 16 had Doctoral degrees while two had Masters degrees. Their composition included three (17%) Professors, six (33%) Associate Professors, eight (44%) Senior Lecturers/librarians and one (6%) librarian. In terms of gender four (22%) were females. All interviewees were substantive office bearers of their respective positions.

From this description of all the respondents it can be concluded that the data collected as reported under section 5.3 was collected from a good combination of strata and constituted a balanced population sample. All groups of the respondents and interviewees had the basic characteristics required for the study and in terms of their educational background and experience and could be what Babbie and Mouton (2001:236) refer to as being relied upon for providing relevant and reliable responses to suit the study.

6.3   State of information literacy practiced

This section provides some interpretation and discussion on the state of the art of
IL in terms of the teaching methods, assessment and evaluation and IL practice in general
that were in place in the universities under study. The section also discusses the
effectiveness of those aspects.

6.3.1   Information literacy teaching

6.3.1.1 Teaching methods used

Information literacy involves knowledge and the use of skills or competencies that
together make for effective and appropriate use of information (Armstrong 2005).
Knowledge and skills needs to be nurtured and promoted by the use and application of
different teaching methods. Different methods and their effectiveness have been
discussed under section 3.9. The study has established that all four universities provide
some forms of training for the use of library and information sources employing a
combination of different methods to impart information literacy skills. The lecture
method, according to the findings, is the most favoured method as it was mentioned by
28.3% respondents followed by orientation and hands-on practices by 20.8%
respectively. Web pages were ranked third with 15.1 % followed by seminars and leaflets
at fourth and fifth position with 13.2% and 1.9% respectively. As pointed out by
Thompson (2003) there is no one solution to solve the problem of how to help students
improve their research skills, library skills or information literacy skills, rather a
combination of approaches need to be applied. The application of a combination of
different methods is a positive sign on the side of librarians in Tanzania towards the
effective imparting of IL skills. However, the question at hand is the extent to which
those methods are being applied to create the effectiveness and the impact that is required
in order to enable the learners to acquire the intended knowledge and skills.

6.3.2 Effectiveness of IL teaching methods

Although the study findings as reported under 6.2.1.1 above shows the use of a combination of methods, the findings from observation and interviews do not support that the methods mentioned are effectively used.

6.3.2.1 Lectures

Lectures can be effective under conditions whereby sufficient time is allocated, and the delivery is achieved in an integrated way. The study findings have shown that 63.6% of the respondents said IL was taught as a stand alone as opposed to 36% who said it was taught in an integrated manner. In addition, the study found that the lecturing takes place for sessions that are attended by students on a voluntary basis and outside the formal university academic programmes timetable. This is not to say IL offered as stand-alone is completely ineffective. However, the fact that IL is not allocated time in the main timetable raises more questions as to how effectively lectures are used and what number of students are able to attend regularly and acquire the skills in a consistent sequence. As discussed under section 3.7.1 many authors including De Jager and Nassimbeni (2003), Overholtzer and Tombarge (2003), Quarton (2003), Buchanan, De Anne and Jones (2002), Frantz (2002), Rockman (2002), George et al. (2001), McCartin and Feid (2001), Orr and Wallin (2001), Rader (2001), Dewald et al. (2000), Heseltine (2000), Jacobsen and Mark (2000), Johnson and Webber (2000), Sayed and De Jager (1997) and Kaufman (1992), are in favour of an integrated approach for teaching IL because this approach embeds the process of seeking, evaluating and using information within the course content.

6.3.2.2 Orientation and hands-on practice

Orientation is common in almost all university libraries. Orientation normally is undertaken during the initial stages of the new academic year. Its main purpose is to orientate and familiarise new students with the library services in general such as library setting (floors and collection locations), services such as photocopying premises and procedures, binding facilities, demonstration on how to use OPAC or the card catalogue and other facilities that may be available. However, many authors have stated that

orientation has a number of limitations in terms of being considered as a serious method of imparting adequate IL knowledge and skills. As far as this study is concerned, hands-on methods are considered to be more meaningful because they provide practical skills in using various resources such as CD-ROM and getting actual experience in various applications. However according to this study, this method is hindered by time constraints due to the fact that IL programmes are not allocated official time in the timetable.

Hands-on practice is probably acquired by students when individual students come to the library to search for some information or during voluntary sessions. However, this system does not ensure that all students acquire the intended knowledge and skills.

6.3.2.3 Web page tutorial

The use of web pages tutorials is also an effective method for teaching IL. In this study, web page method was ranked third for its use in IL delivery. However, of the four universities under study only two have a website of their own and of those two libraries only one had a link with an IL aspect. For this one with an IL link, the information provided is very limited and unlikely to have an effective impact on students' IL skills. In addition, there is no stipulated system or mechanism that is in place for ensuring that students follow and learn about the information provided on the web page.

6.3.2.4 Seminar and leaflets

Seminars could have been effective if lecturers were compelled as part of university academic policy to allocate a specific time, such as once or twice per term or semester to take their students to the library in order to attend library seminar sessions. This could have provided an opportunity for students to acquire IL skills. However, as reported under 5.3.2.1 only 7.3% of teaching staff take their students to the library to be introduced to library resources. Instead 84.1% of the teaching staff opted for letting their students go to the library on their own, individually and in their own time, yet without any prior arrangement with librarians. As for leaflets, the study did not find any evidence of their being used purposefully for transmitting IL skills.

From the findings of the study, based on the comments given by students regarding the effectiveness of the methods used to impart IL, it can be concluded that the methods used for training are generally not effective because in various respects and in terms of the way they are used they are not sufficient. The study findings as reported under 5.3.1.3 have shown that of 644 student respondents 49% were aware of IL training being provided while 51% were not aware of the training. Of this 49% who were aware of the training, 53% said the training was not effective as opposed to 47% who said the training was effective. The reasons given for the non-effectiveness of the training was inadequate time 43%; lack of comprehensiveness of the programme 4%; lack of a proper programme 2.2%; lack of practice 2.2%, and the use of unqualified instructors 1.6%. The training being referred to by students could be orientation sessions or lectures delivered by librarians on request or sessions that were attended voluntarily as reported under 5.3.1.4. What ever the case may be, the reasons given by students for the non-effectiveness of IL programmes as reported under 5.3.1.3 reflects the reality and actual status of IL in the universities under study.

6.3.3   Lack of current awareness

In spite of the efforts to introduce and promote IL as indicated from the findings under section 5.3.1.3, the study findings also show that of 644 student respondents 51% were not aware of IL training compared to 49% who were aware of it. For the teaching staff the study has shown that 69.8% knew about the training while 30.2% did not. This is a clear indication that there is lack of awareness of the services available for both students and staff. As a result this situation could lead to few students attending the IL training that is in place contrary to the actual intention. On the other hand, even some of the teaching staff who could have, in one way or another encouraged the students to go for IL training, were not in a position to do so. Lack of awareness also affects other issues including the effective utilization of various resources that are available.

Referring to resource utilization Buschman and Warner (2005) observe that digital resources licensed or subscribed to by the institution's libraries in order to match students' needs are likely to be under-utilised when there is no effective information

literacy. This is the case with the UDSM where Kiondo (2004) made the same observation by pointing out that despite high IT investment at the university, that investment did not match with levels of resource usage, access to computer facilities and IT skills. She thus concludes that "The use of IT application in teaching and learning and in accessing various electronic information resource packages subscribed to by the University library remains low" (Kiondo 2004:38). Her observation has also been confirmed by this study under 5.3.3.3.1 where students have shown low rates of down loading journal articles from online journals from INASP to which they have free access.

Awareness among information users can be better harnessed by the use of posters and leaflets placed on notice boards and at important points such as issue desks, main library entrances and specific sections. The study as reported under 5.4.3 has established poor use of posters and leaflets.

6.3.4   Non involvement of teaching staff

The importance in the success of IL programmes by involving teaching staff has been emphasised by many authors as indicated under section 3.8. Collaboration between teaching staff and librarians is essential for effective IL development, planning and delivery of training (Asher 2003). This sort of collaboration also serves other purposes including fostering the sharing of ideas and expertise. It also provides opportunities for exposure to different pedagogies, as well as to new teaching and learning techniques and enables colleagues to become familiar with each other's fields (Hunt and Birks 2004).

As shown under section 5.3 the study found that the involvement of teaching staff in IL activities was very minimal as only 8.7% of the librarians indicated that teaching staff were involved in IL activities (teaching and designing content for IL programme) compared to 82.6% of the respondents who indicated that IL was undertaken by library staff. The study also found that the majority of librarians (72%), two library directors and a library head interviewed were in favour of IL being taught by librarians. The reasons given were that librarians were experts in IL while teaching staff generally lacked IL skills. As shall be discussed under 6.6.2.4 the non-involvement of teaching staff can

become another factor that may lead to attempts at the fostering of IL not being effective and to IL not receiving university wide recognition as it remains confined within the library and is practiced by librarians in isolation.

6.3.5   Lack of hands-on practice

Among the inefficiencies of IL programmes cited by student respondents was the lack of opportunity for hands-on practice. Practice can be gained by using the facilities such as CD-ROMs, PCs or searching for information from various information sources. Blakeslee, Owens and Dixon (2001) and Moran and Gibbs (1999) recommend that in order to achieve the most effective learning environment for IL the practical context is important in order to reinforce theory. Although the study has found that hands-on-practice was cited by 20.8% of librarians as one method used for imparting IL skills, it seems that hands-on applications are not applied effectively owing to a number of factors cited by library directors under 5.3.1.4., including inadequate time allocation leading to limited coverage, and an inadequate number of PCs. This is an area that needs to be addressed in order to create more room for the effective acquisition of knowledge and skills.

6.3.6   IL aspects taught

The shift and orientation for IL as discerned from existing practices (library instruction bibliographic instruction and user education) has been discussed under 3.5. Unlike bibliographic instruction and other forms of instruction, IL embraces a combination of knowledge, skills and concepts that are learned over time, both in and outside the library (Galvin 2005). Information literacy also underlies education as a whole and everything we do in libraries and outside libraries to facilitate access to information (Bridgland and Whitehead 2004). Thus in order to equip students with necessary skills and make information literacy more meaningful in a way that extends its scope beyond former programmes such as user education, library instruction and other forms of instruction, information literacy programmes should combine skills and competencies such as retrieving, assessing and evaluating, assimilating and creating new knowledge out of the synthesis of information from a variety of information sources.

The findings of the study have shown that a relatively good combination of IL aspects is covered in the programmes as shown in figure 6 under section 5.3.1. The study has demonstrated that information search skills are given weight as they were ranked first by 34% of the librarian respondents, followed by use of library facilities with 26% respondents. Information evaluation is ranked third with 17.3% respondents, followed by use of sources of information at fourth position with 15.4% respondents. Citation and references was last in fifth position with 5.8% respondents. Although it cannot be stated categorically that one particular IL aspect is more important than the others, it is important to provide balanced training that would enable students to acquire skills in all aspects so that they can link one particular skill to another. This linking of skills is needed because they are interrelated and depend on each other. For instance, for the students, the benefits of being information literate will be limited if they are able to search for information from the Internet but cannot evaluate the information they find. As discussed under section 6.4.4.1 students have demonstrated heavy use of the Internet but at the same time they have demonstrated a weakness in evaluating the Internet information. In this respect, skills in the evaluation of information need to be given as much weight as information searching. The study findings have shown that weight attached to teaching of information evaluation and use of sources of information is indicated as 17.3% and 15.4% respectively.

6.3.7   IL assessment

Assessment and evaluation of any teaching and learning programme is very important. As discussed under section 3.11, assessment is one of the areas in library and information services that is not widely practiced. As documented in the literature, the study has found and confirmed that assessment and evaluation of IL in the universities under study is weak. Out of 25 respondents who were required to respond regarding the presence of IL assessment and evaluation systems, 68% of the respondents indicated that there was no assessment/evaluation system as compared to 32% who said the opposite. The study has found that the main area where assessment and evaluation exercise takes place as indicated by 87.5% respondents concerned students' IL skills gained during the programme while 12.5% mentioned students' prior IL skills. The main period of

assessment and evaluation was during the programme as indicated by 50% of the respondents.

As shown under section 5.3.1.3 the main assessment tools are examination and feed back from evaluation forms from students with 37% each. Another method used is assignments at 25.5%. These study findings indicate that assessment /evaluation of the teaching methods is not done at all. The importance of evaluating and assessing teaching methods has been highlighted under 3.11.3. Evaluation and assessment of teaching methods is crucial because it potentially leads to improvement of IL delivery. Based on the study findings it has been established that assessment and evaluation of IL activities needs to be given more weight in order to make these measures attract more serious attention and recognition institutionally. Different approaches for evaluation and assessment such as checklists, interviews and oral questions can be applied in combination and in addition to summative assessment. Hunt and Birks (2004) contend that assessment of student outcomes in IL is most effective when multiple measures are applied. Hunt and Birks (2004) point out further that, opposed to the old model of teach then test, IL is best assessed for both process and product.

The importance of outcome-based assessment is also echoed by Rockman (2002:192) who observes that such an assessment helps to give evidence in terms of the library's contribution regarding students' learning that result from gaining IL skills. Without producing evidence of what is taking place in IL activities it will be difficult to justify the importance of IL hence the prospect of IL being integrated into the mainstream curriculum and/or requests for funds to run IL activities are most likely to meet stiff opposition and not be accepted by university structures.

6.4 Teaching methods and practices employed by lecturers that promote or impede IL

It has been emphasised under section 3.7.2.1 that teaching staff have a great influence on their students. They influence the curriculum, as well as the choice of learning materials used including information sources. According to Dewald (2005) teaching staff influence

the type and quality of resources used by their students. In this respect they can also determine the extent to which students use the library and other information resources within and outside the library.

6.4.1   Teaching staff's requirements for students' usage of information sources

As shown under section 5.3.2.3 the study has found that 95.5% of the teaching staff requires their students to use additional information sources apart from those they prescribe. The study also found that for 62 % of the teaching staff their emphasis on their students using information sources such as books and journal articles prescribed by them was moderate. The study found the same moderate rating by 45.3% for searching and discovering other information sources apart from those they prescribe. The study further found that 97.7% of the students indicated that the teaching staff required them to use the library. Of the students 41.9% rated the teaching staff's emphasis on requiring them to use the library and other information sources apart from those they prescribe as moderate.

A moderate emphasis by lecturers regarding the requirement for their students to search and discover other relevant information sources apart from those they prescribe does not encourage students to become serious information searchers and independent learners. The reason is that the learning environment created by their lecturers does not provide sufficient encouragement, as well as challenge for them to do so. Kuh and Gonyea (2003:262) observe that students in an academically challenging environment in which teaching staff assign tasks to their students that require students to integrate the ideas that they learn in class and apply them to other activities, are likely to use a variety of sources of information such as indexes, databases as well as consulting librarians, thus developing their IL skills.

From these findings it can be concluded that although teaching staff have shown that they want their students to use the library for information searching and using other varieties of information sources, their level of emphasis and thrust for doing so is not sufficiently strong to bring about a substantial motivation in students so that they become effective and serious information searchers. This same trend is also reflected under section 6.4.2

below on the methods used by teaching staff to expose students to library and information sources in general.

6.4.2 Methods used by teaching staff to ensure that students get exposure to library and information sources.

As discussed earlier, teaching staff have great influence on how students can and should utilise different information resources. This can be done though assignments, training or emphasis and a requirement for use of those information sources as a criterion for being awarded additional marks. The study found that 84.1% of teaching staff preferred asking the students to go to the library on their own and consult the librarians as the main way of making their student get exposure to the use of library and other information sources. Only 8.5% consulted the librarians about providing assistance to students while only 7.3% teaching staff took their students to the library themselves. This situation is similar to the one observed by Somi and De Jager (2005:261) at Fort Hare University where it is reported that occasionally teaching staff send their students to the library to be trained "specifically" in the use of information resources in their particular subject area.

The findings of the study indicate that teaching staff are not very interested in following-up in order to know exactly how their students fare in using library resources. They possibly assume that students can acquire library and information use skills on their own just by entering the library. Such a misconception is also noted to by Moore (2002:6) who advises caution by referring to schoolchildren who she points out do not learn information skills by "osmosis" just by entering the library. The same applies to university students; they cannot acquire skills for effective information use just by entering the library, they need to be provided with proper guidance.

According to Hunt and Birks (2004) the trend for teaching staff to not provide proper guidance for information resources usage to students continues because some teaching staff lack understanding of the importance of the library as a base for teaching and learning in the information explosion era. These two authors point out further that teaching staff believe that their students can acquire the skills the way they did prior to

the electronic age. This is a misconception as students need assistance and guidance from both teaching staff and librarians in establishing intelligent search process and strategies. This kind of a situation requires close collaboration between teaching staff and librarians. It is therefore not ideal for teaching staff to just send the students to the library without making arrangements or communicating with librarians on what exactly students need or on what aspects those students should be guided in.

6.5   Students' competence and incompetence in IL knowledge and skills

In order to uncover student's competencies or incompetencies in aspects of IL, the researcher began by exploring their pre-university backgrounds concerning access to information related to library and information use. This background was considered important because in one way or another it could influence some aspects of their IL knowledge and skills at university level.

6.5.1   State of students' school libraries

The study found that 74.5% of the students had attended schools that had no libraries while only 25.5% reported that they had attended schools with libraries. In addition to those findings, the study found out further that school libraries were run without trained staff as 57.4% of the responses indicated that students ran their school libraries, while 13% said teachers ran their school libraries. These findings confirm observations raised under section 1.3 and in Table 5.8 that schools in many African countries have no libraries and where they are present, those libraries are poorly staffed, buildings and resources such as books are inadequate or lacking. One respondent, for example, made a notable comment that corroborated this view of the school libraries situation as follows:

> *It was an old fashioned one, with almost no library facility, with very old books, few in number, some of them not useful for my studies. There was no librarian whom we could consult for assistance. There was no timetable for library use and it was rarely opened, as such in two years of my high school period I used it only twice.*

To further confirm this situation mentioned above regarding the poor state of school libraries in Tanzania, in an address Honourable Margaret Sitta, Tanzania's Minister for Education and Vocation Training, directed all primary and secondary schools in Tanzania

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to revive their libraries that had not been functioning for a long time. The Minister also urged the establishment of new libraries. The Minister noted further that school libraries helped to build reading habits among students, she lamented, however, that, lack of school libraries had lead to lack of reading behaviour among students. Her address was made when she presented books and other materials to secondary and primary schools and special groups donated by Children in Crisis Africa (CICA) an NGO dealing with children living in difficult conditions in Africa (Kimwaga 2006).

The study found that in the schools with libraries the libraries were relatively well stocked with information materials. The study shows that 91.1% of the respondents whose schools had libraries, reported the presence of subject related literature in their libraries; 74.6% had libraries containing reference works like encyclopaedias and dictionaries; 74.6% had libraries containing fiction materials; 81.1 % reported the presence of newspapers in the libraries, while 43.2% noted that their libraries had journals. Although the study was not able to distinguish exactly which of the schools that had those materials were private and which were government, the availability of library materials can be translated to reflect two aspects. One of them is the government's effort to improve the education system by providing schools with equipment including books as discussed under section 2.8.2.1.2. On the other hand, availability of materials can be attributed to the establishment of more privately owned schools that are relatively well equipped in terms of school materials as compared to government schools.

Although the study found that 74.6% of the students had come from schools with libraries that had reference materials such as dictionaries and encyclopaedias in terms of knowledge and skills in using those materials only 23.8% rated themselves as "Higher" and "Highest" where as 50.7% rated themselves as "Lower" and "Lowest".

While no concise empirical explanation for these results can be given, one of the probable reasons for the lower percentage in terms of knowledge and skills in using these tools could be a lack of habitual use that might be a result of teaching methods used by their teachers. If teachers in schools did not encourage the use of such sources it is likely

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that students would not acquire the required competency. This relates to the deficiencies that could have been carried over by students from schools to university level.

6.5.2 Students' use of school libraries

The study has found that for those students who had libraries in their schools, 69.9% used the library from every day to two to four times a week, while 15% used the library once a week. The study also found that a small number of students, 37.3% received some kind of library instruction while 67.7% did not receive any kind of instruction. The study found further that the major form of instruction for library use as indicated by 61.6% was instruction given when students visited the library. The second major form of instruction indicated by 19.6% was signs and posters placed in the library.

However, from the fact that as shown under section 6.5.1, 57.4% of the students reported that their school libraries were run without trained staff, the effectiveness of the instruction claimed to have been provided is questionable. It can therefore be concluded that the instruction being referred to by students was probably simple instructions, particularly rules and regulations about the library rather than instruction for the acquisition of information use, knowledge and skills. This is reflected by the responses of 65% of the students who said their previous knowledge was not sufficient to enable them to effectively use the university library.

The study identified three major reasons that were considered as causes for the inadequacy. Firstly, University library facilities were considered to be more advanced and complicated when compared to school libraries. This reason was identified by 40.6% of the respondents. The second reason given by 144 (30.6%) was the insufficient training that was provided. The last reason was the complete lack of training in using library facilities at secondary school level cited by 28.9% of the respondents. Lack of adequate knowledge about how to use the university library and its facilities is confirmed by the following observation given by one respondent:

> *The knowledge was insufficient because my school library which I*
> *used was small and had few materials as opposed to the university*

library which is equipped with a lot of materials hence it requires good knowledge on how to trace them.

Poor background in using libraries from school level has negative implications for the effective and efficient use of the university library facilities. This is mainly because students lack transferable skills for information use. Lack of transference of skills from secondary school experience to tertiary education has also been identifies by Hartman (2001) from first-year undergraduate students at the University of Ballarat. In this study students expressed their need for help to develop skills that would enable them cope with university library resources.

6.5.3   Improving students IL knowledge and skills

In connection with this problem, through interviews Deputy Vice Chancellors and Faculty Deans were asked to give their views on how best university students could be helped to acquire adequate knowledge and skills to use university library resources and information resources in general. The interviewees recognised in their responses the need to introduce or strengthen measures that fell within the university mandate such as the introduction of a more comprehensive programme instead of relying on orientation, provision of adequate resources to support the training and the need for librarians to become more dynamic in applying different teaching and marketing strategies including the use of brochures and leaflets as well as manuals. They also put emphasis on the importance of sensitising the teaching staff on the importance of IL and the need to improve teaching methods on the part of the teaching staff so that the methods applied are student centred and can motivate students to control their own learning instead of relying on their lecturers.

However, the Deputy Vice Chancellors and Faculty Deans also observed that there are measures that could be considered at national level. Among the important measures cited is improving reading culture among Tanzanians. They observed that university students as a segment of the Tanzanian population have a very poor reading culture, so they do not have strong reading habits or a quest for information and as a result they tend to heavily rely on their lecturers.

While "reading" may not directly increase IL *per se*, building the reading habit and for the purpose of learning and acquiring new knowledge in one way or another may make students more inquisitive in terms of exploring and acquiring information from various sources. In this way students could be motivated to learn about how to search and use various information resources available to them.

Tanzania's President Honourable Jakaya Mrisho Kikwete also supported this argument when he addressed the residents of Coast Region in Tanzania. In his address, Honourable Kikwete called upon Tanzanians to cultivate a strong reading culture as a way of equipping themselves with adequate knowledge to cope with modern day challenges (Kigwangallah 2006). Developing reading culture is very important for students because even if the resources are available, if students do not have the will to utilise them, they will be useless. The whole scenario shows the extent to which education and training in IL is needed at university level.

6.5.4 Information resource use patterns

In this section patterns for the use of different information sources including the general use of the library, the Internet, special reserve/short loan and East Africana collections, and on-line journals are discussed.

6.5.4.1 General use of the library

The study found that 97.3% of the students used the library for accessing information. The study also established that student's activities for accessing and using information from the library were performed at different frequencies as shown under section 5.3.3.3.1, Table 5.9 regarding students' assessment of their information seeking patterns.

It has been revealed from the study that there were four main activities in which students are actively involved, at frequencies that varied from every day to two to four times per week. These activities were using reference material in the library by 75.4% and searching the Internet for required academic information by 50.3%. Other activities that have higher performance frequencies within a range of every day and two to four times

per week include reading newspapers or magazine for local political, social and economic information by 72.8%; while 60.6% read these sources for international political, social and economic information, and for local sports and leisure news respectively. Frequent use of newspapers indicates awareness among students of the need for keeping up date in local and international issues including political, social, economic as well as leisure and recreational.

6.5.4.2 Use of the Internet

As far as academic information is concerned from the four activities mentioned under 6.5.4.1 the use of the Internet is the most significant activity. The study findings regarding Internet usage confirms some observations given by authors such as Buschman and Warner (2005) and Lombardo and Miree (2003) on the widespread usage of the Internet by students and their reliance on it as their primary sources of information for coursework and doing assignments. However, as observed by O'Sullivan and Scott (1999) students use the Internet on the basis of a perception that the Internet provides easy access to a vast array of reliable information but they do not necessarily use it (the Internet) efficiently.

According to Scott and O'Sullivan (2000:123) Internet users have developed an infatuation with information; any information is good information and the more of it, the better, as long as it is easy to obtain. In the same line, Heycock (2000:34) observes that students usually choose less reliable commercial sites over educational or government sites for their research even though only one fourth of commercial sites are suitable for academic purpose. Similarly, Rockman (2002:195) also notes that students embrace the virtual library (Web) or the Internet over the traditional library for its convenience, flexibility, timeliness and access to large amounts of information.

The observation raised by Rockman (2002) has been reflected in this study as shown under section 5.3.3.3.2 whereby 55.4% and 42.3% of the students respectively rated the Internet as very useful and useful in meeting their academic information needs. Only 2.3% of the students said the Internet was not useful. Of the students 50.3% indicated that

they used the Internet between every day and two to four times per week. However, on the other hand 16.2% and 38.7% rated their skills for searching the Internet with various search engines as lower and lowest respectively. To some extent this confirms that students' use of the Internet was motivated by its convenience and not necessarily the students' possession of the requisite skills for its effective use.

In terms of the criteria students use in determining the credibility of the information they get from the Internet, the study found that students were relatively aware of some of the criteria. Relevance of the information in relation to the subject was the main criterion for Internet information credibility by 55.5% respondents, followed by source (authority or author) by 35% and lastly currency in terms of the publication date by 9.4% of the respondents.

However, while the selection of the above criteria tends to confirm good practice, students failed to mention other important criteria such as making a distinction between facts and opinions, popular as opposed to academic information, as well as audience for whom the information is intended. The criteria cited by students for determining the credibility of the information they get from the Internet are based on what Meola (2004) refers as the checklist model (authority, accuracy, objectivity and currency coverage). Meola (2004) criticizes the checklist model because he argues that this model does not take into consideration the nature of information on the Web and that it is difficult to implement in practice because it encourages a mechanistic way of evaluating information instead of applying critical thinking. Meola (2004) thus prefers a contextual approach. This approach uses three techniques: promoting peer-and editorially reviewed resources, comparison and collaboration. This approach also promotes library resources and encourages reasoned judgements of information. His approach is important particularly as a crucial aspect of IL is to equip students with the ability, knowledge and skills to be able to evaluate Internet information in a more critical way. The point of emphasis here is that students need to be equipped with the appropriate knowledge and skills for effective Internet use.

However, the study also found significant gaps in the students' information searching and use activities that one would consider as important for day-to-day students' information needs. These are discussed under 6.5.4.3, 6.5.4.4 and 6.5.4.5.

6.5.4.3 Use of CD-ROMs

CD-ROMs are important information resources. CD-ROM databases both in bibliographic and full text versions provide comprehensive and reliable academic information. However, one of the areas where students demonstrated weaknesses, was the use of CD-ROMs databases. The study has indicated that 68.4% of the students did not use CD-ROMs for a whole month compared to only 10.5% who used the CD-ROMs within a range of every day and two to four times per week. The low frequency for CD-ROM use could be related to a lack of skills to use them. However, on the other hand this could be a reflection of a lack of some of the electronic facilities for CD-ROMs, in particular, in two of the universities under study as indicated under 5.2.4.

6.5.4.4 Use of special reserve /short loan collections and East Africana collections

Books kept in the above-mentioned collections, are books considered to be important for students in various programmes. They are books kept there at lecturers' requests so as to enable the majority of students to access them whenever they want to, because they are usually not loaned out of the library during library hours. The study found out that the use of books reserved under short loan, special and East Africana collections was poor. Of the students 52.9% indicated that they did not use books in these collections for a whole month as compared to 24.7% who used these collections either every day or between once and four times per week. The non-use of reserved books can also be due to librarians' ineffective use of current awareness measures that would assist in publicising various library services or possibly on their over reliance on the Internet.

6.5.4.5 Use of on-line journals

Journal articles are very important information sources because in most cases they provide recent information that has been researched by experts and scholars in specific fields. In addition journal articles, unlike much of the information published on the

Internet, undergo rigorous reviews before being published. Although most university libraries in developing countries, including countries in Sub-Saharan Africa, lack current academic information resources including books and journals because of inadequate funding, it has been indicated under section 2.10.4.4 that all four universities under study had access to full text on-line journals provided by INASP. With that attractive journal access, it would have been expected that students would use those journals heavily. However, the study has shown that only 19.6% downloaded journal articles every day or in a range of two to four times per week as compared to 47.1% who did not download an article for the whole month. Even bearing in mind the undergraduate nature of student population studies, online journal use appears to be low in a situation of paucity of other up-to-date resources. While the poor usage of online journals may be due to lack of awareness about them, however on the hand it can also reflect poor information search skills among students. This is confirmed by students' responses regarding the need for them to be given training as discussed under section 6.5.5.5.

On the other hand this poor use can also be a reflection of students' reliance on their lecturers' materials that also mirrors the teaching methods used by lecturers. Reliance on materials prescribed by lecturers could be partly due to the teaching methods applied by lecturers who do not demand sthat tudents use a variety of information sources. Methods of instruction in higher education in developing countries have been criticized for being too traditional in the sense that students are being "spoon fed" and too heavily reliant on their lecturers' notes and text books (Popoola 1992:162). This observation has been established in the study by finding that, when working on their assignments 66.6% of the students preferred using books prescribed by their lecturers; a preference that was followed by handouts and other materials provided by lecturers by 51.1%. The tendency of relying on the materials prescribed by lecturers is also observed among students at the University of Botswana (Ojedokun and Lumande 2005:119).

It is therefore clear that students rely heavily on materials provided or prescribed by their lecturers. One consequence of this could be that students may tend not to bother putting effort to trying to find and identify information from other sources besides those

prescribed by lecturers. However, it is important to note that in a situation where up-to
date books and journals are scarce as is the case in many higher learning institutions in
Tanzania, students need to be equipped with skills that will enable them to effectively
and efficiently use the available electronic resources including the Internet, online journal
and CD-ROMs.

6.5.5 Skills and competence in specific aspects of IL

Library and other information facilities are useless if the intended users of those facilities
are not able to use them effectively and efficiently. A concern raised by Kiondo (2004)
was that the high IT investment at the University of Dar-Es-Salaam did not match the
levels of resource usage, access to computer facilities and IT, is notable in this regard.
According to Kiondo (2004:47) the reasons that weaken effective use of various
resources include low speed for the Internet connectivity, lack of time on the part of users
and lack of awareness of the content of individual packages due to a lack of articulate and
thorough information marketing strategies. She therefore recommends as important an
intensive marketing campaign where the information users are made aware of what
resources are available together with training in their use.

6.5.5.1 Competence in the use of CD-ROMs

Regarding skills and competence in the use of various information resources from
students' point of view, the study found that students have more or less adequate
knowledge and skills in using electronic sources of information such as CD-ROMs and
OPACs. These sources were rated highest by students at 41.2% and 32.6% respectively,
in terms of having the necessary knowledge and skills to use them.

The difference reflected in terms of students' poor use of CD-ROMs as indicated under
6.5.4.3 and competence in using CD-ROMs as indicated under 6.5.5.1 can also be
interpreted as the difference in the availability of CD-ROMs in the four universities as
indicated under 5.5.2. It was to be expected that students in universities with CD-ROMs

are likely to be relatively more competent in using CD-ROM, than their counterparts in universities without them.

6.5.5.2 Internet skills

It has been mentioned under section 6.5.4.2 that 55.4% and 42.3% of the students respectively rated the Internet as very useful and useful in meeting their academic information needs and also that, 50.3% students indicated that they used the Internet between every day and two to four times per week. In the same section mentioned above it has been indicated that of the students, 55% rated their skills for searching the Internet with various search engines as lower and lowest. However, students revealed weaknesses in term of their having knowledge and skills in searching for information using search engines, rating it lowest with 38.7%. An anomaly is that, if students are using the Internet every day, why are they not able to use the search engines? As reported under section 5.3.3.3.2, students indicated that the three most used search engine were Google by 82%, Yahoo by 61.8% and Msn by 16.2%. One possible explanation is that while students do use and search the Internet using various search engines, their problem is with the term "search engine" it self. Possibly students who search the Internet using Google, Yahoo, Msn and other search engines do so without knowing that those are search engines.

6.5.5.3 Computer skills

Although computer literacy and information literacy overlap and complement each other, they form distinct competencies. Being computer literate for an individual does not guarantee that the individual is information literate. However, in today's world a computer literate person must also be information literate, and to some extent vice versa. Competence in computer skills is important in acquiring IL skills and other learning activities in general.

Regarding competence in the use of computers, as shown under section 5.3.3.3.3 the study found that students are relatively competent in word processing where 52.6% reported being competent and confident while 37.7% had some idea but were not competent. Students also indicated the same trend for computer operating systems

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regarding which 46.9% indicated that they were competent and confident while 48.1% had some idea. Students however, have shown weakness in terms of skills and competence in the use of databases such as Access and D/base where only 15.2% indicated that they were competent and confident. For computer packages, the study also found that students were also weak regarding knowledge and skills for using packages such as SPSS and SAS programmes where 58.7% reported that they were unable to use such software but would like to learn. For Excel spreadsheet use 46.2% reported that they had some idea but were not confident while 19.4% were unable to use Excel but would like to learn.

The differences found in terms of skills and competence in various aspects as indicated above can be attributed to differences in the degree programmes undertaken by students and the need in particular programmes for skills regarding specific computer package(s). For example, compared to students who are doing history and literature, students doing accountancy, commerce or statistics are most likely to be more familiar with and knowledgeable about mathematical and statistical packages as well as Excel spread sheets because their studies in one way or another require frequent use of such packages. On the other hand, a requirement by some lecturers for students to submit assignments that are word-processed or presented in certain computer formats is a catalyst for students' familiarization with and learning how to use various computer applications such as Microsoft Word.

6.5.5.4 Information search skills

Information is a vital resource that underpins social, economic and political development. In an academic environment, information is a vital input for all learning, teaching and research activities. Information that is needed to fulfil those purposes is available in various formats both in electronic and non-electronic formats. However, most information required to support assembling academic and professional careers requires extensive literature searching and the garnering of ideas from different sources and formats, thus individuals who are able to use the right information from the right source at the right time stand a better chance of succeeding in their endeavours than those who

can not do so. In this regard, knowledge and skills for locating, retrieving, evaluating, analysing, and using appropriate information in an effective and efficient way is vital. It is on this understanding that the importance of students having knowledge and skills in information searching is based.

The study established and confirmed that both the teaching staff and librarians agreed that students lacked skills and competence in other IL related skills. From the point of view of the teaching staff, as shown under section 5.3.3.2 the findings of the study revealed that the three areas considered to be weak among students were searching for information from electronic sources at 21.1%, formulation of search strategy and establishing key words at 18.1%, and evaluation of information at 16.5%. The three most problematic areas in terms of students' IL skills were searching for information (31.8%), use of electronic sources (24.1%) and citation and referencing (21.5%).

As shown in Table 5.10 in addition to the weaknesses identified in searching for information above, students also rated lower at 18.9% and lowest at 31.8% the use of reference tools and bibliographic tools. These two resources are also important for locating important information.

What needs to be emphasised is that students need to acquire skills and competencies in the use of all sources of information regardless of their formats and therefore should be exposed to conventional sources as well as to various computer programmes that can be applied to different IL functions. Students should not gain competence in the use of certain types of information sources to the neglect of others. It has been indicated under 6.5.4.2 that students exhibit over reliance on Web-based resources as opposed to using other traditional library sources such as print information sources such as indexes and bibliographies. In the Tanzanian situation where electrical power cuts are frequent as pointed out by Bandiho (2003) and in a situation where Internet connectivity is generally poor because of low bandwidth allocation from ISPs, students need to know how to use print sources of information such as bibliographies and indexes in order to use them as

substitutes in the case of power failure or when their coverage differs from that of the electronic sources.

6.5.5.5 Requirements and needs for IL training

Under sections 6.5.5.1 to 6.5.5.6, competence among students in various IL aspects has been discussed. However, the study found that despite competence shown in those aspects, they still needed training in order to increase or acquire additional and appropriate skills in the use of those resources. The study found that 74.7% of the students confirmed that the presence of information in various formats presented difficulties for them in comprehending, selecting and using it. The study found further that 90.4% needed training in the use of online databases while 91.3% indicated the need for training in the use of the Internet. Need for training in electronic sources as found in this study, confirms the findings of Wang and Artero's (2005) study among three colleges in the Pacific Rim which indicated that students needed training in obtaining, evaluating and using web resources.

The study has also established that students needed training in other IL skills. Students indicated as their first priority, the need for training in the following areas: searching for information from electronic sources 63.8%, knowledge about using electronic sources by 60.6%, topic analysis by 44.9%, and formulation of search strategy by 38.6%. The needs for training identified by students in this study (analysing the topic and developing the search strategy) are similar to those identifies by Hepworth (1999) in his study at Nanyang Technological University. He found that among the problems students encountered while conducting projects, was defining the problem in the broader context of the subject under study.

The findings in the present study regarding students' need for training also correspond with the areas identified by librarians and teaching staff as shown under section 6.5.5.4 as areas where students had shown weakness. The study found that students had less interest in acquiring skills in the use of print (hard copies) and searching for information from print (hard copy) sources. Their responses regarding these two aspects as their first

priority for training were low. Only 28.6% opted for the use of print sources (hard copies) as a first priority, while searching for information from print (hard copy) sources as their first priority was 26.8%. Findings regarding a lack of preference regarding training for searching for information in hard copy confirms some observations raised by Buschman and Warner (2005) and Lombardo and Miree (2003) that students neglect library print resources in favour of electronic sources.

As discussed under section 6.5.5.4 at present, as is the case elsewhere, the situation in Tanzania does not allow for completely abandoning the use of print resources. Students have to be trained in how to use and search for information from non-electronic sources. In general, the findings confirm that students lack adequate skills in the effective use of both electronic and non electronic information sources thus they need to be assisted in order to acquire the needed knowledge and skills.

The question that could be posed is whether students are really moderately information literate or not. While the findings of the study derived from teaching staff have established that differences can be discerned between senior and junior students in terms of their information literacy levels, according to section 5.3.3.2 the highest rating for students' information literacy rate was moderate. The teaching staff ratings indicated that 46.5% rated the students as moderately information literate, 11.2% as strong, while only 1.2% rated the students as very strong. On the other hand 32.6% rated them as weak with a score of 21 (98.1%) at very weak.

Similarly, students' rating of their own information literacy as shown under section 5.3.3.3.4, revealed that the majority of the students at 83.4% rated themselves as moderately information literate compared to 9.3% and 4.2% who rated themselves as highly information literate and not information literate respectively.

Findings from teaching staff regarding students' information literacy levels and students' self ratings, are slightly different from those of librarians in terms of students' skills in using the library and other information resources. Librarians rated students' skills in

using the library and other information resources as good at 12%; fair at 16%, poor at 56%, and 16% as very poor. The three areas that were considered to be weak in students were formulation of search strategy and establishing key words, noted by 27.3%; searching for information from electronic sources stated by 20.8%, and topic analysis by 16.9%. The difference is that, while the majority of teaching staff regarded their students as moderately information literate and the majority of students regarded themselves as moderately information literate, librarians' ratings of student's skills in using the library and other information resources were poor at 56%. By implication librarians consider the rate of students' IL literacy below the moderate level as indicated by teaching staff and the students.

The issue of an individual accepting that he or she is not information literate is somehow a difficult one. According to Bawden (2001) as cited by Webber and Johnston (2003b:259) some people tend to feel uncomfortable with the term "information literacy" because by implication if some one is not 'literate' then he or she is 'illiterate'. Since being illiterate can be regarded as highly disadvantageous, people do not easily accept that they are information illiterate. In this regard, the rating for students' information literacy by teaching staff and students could have been given with such thinking in mind.

However, staff's acknowledgement of a lack of knowledge and skills among students in many aspects of IL, and their rating of students as moderately information literate is a clear indication that students do not or have not reached a sufficiently high level of knowledge and skills to be considered information literate. Therefore measures to alleviate this situation need to be taken. After all, no teacher or lecturer in any discipline aspires to producing a moderately performing student. Galvin (2005) observes that in some cases lecturers fail to acknowledge that students need help in attaining information literacy because they believe students can become skilled on their own while others refuse to acknowledge that their students lack information literacy skills. In such situations Galvin's (2005) statement that it can be difficult to convince lecturers that their students need to be trained in IL come to mind. However, the fact that teaching staff in this study have acknowledged that students lack knowledge, skills and competence in a

number of IL aspects provides a positive base for future prospects for Tanzanian universities to introduce and implement of a more systematic and comprehensive IL programme in future.

6.5.5.6 Awareness of the need for the ethical use of information

Using information ethically is an important aspect for every information user. Acknowledging other peoples' ideas and information sources that are used in academic and non-academic work, copyright law and regulations are some of the issues that need to be observed by information users. Nevertheless, some information users including students knowingly or unknowingly tend not to follow ethical practices regarding the use of information. Plagiarism and violation of copyright in situations such as the photocopying of reading materials are common among information users.

As shown under section 5.3.3.3.4 the study found that students have a relatively good awareness of ethical issues concerning the use of information. This is construed from the fact that the majority of the students, 72.3%, gave "strongly disagree" and "disagree" responses for a statement that it is not important to purchase computer software when it can be obtained from a friend. The same responses were given by 84.8% for a statement that acknowledging other people's work is not important when writing academic papers. The same tendency to awareness was shown regarding the protection of copyright regulations for safe guarding other peoples intellectual efforts for which 81.4% gave strongly agree and agree responses in favour of copyright regulation.

However, in terms of the photocopying of reading materials such as books, 25.2% and 36.7% gave a strongly agree and agree responses respectively in favour of photocopying the whole book on the basis of a shortage of books. The reason for this situation may well lie in the genuine book shortage situation in their institutions. From the researcher's own observations shortage of reading materials such as current books often leads students to engage in photocopying practices that are contrary to copyright regulations such as photocopying the whole book.

Although the study found that the majority of the students were aware of practices concerning the ethical use of information, this does no mean there was no abusive use of information. It should therefore be a continued responsibility of both librarians and teaching staff to teach and make students aware that the ethical use of information is a necessary practice and a responsibility of all information users. Stressing the importance of guiding students on the ethical use of information Carefoot observes that:

students must be made to be aware of laws and regulations guiding information use and intellectual property right that are in place and be taught to work with information so that they use it wisely instead of having the information use them (Carefoot 2001:3).

6.6   Barriers/obstacles that affect effective implementation of IL

Some library and information science literature indicates that efforts by librarians to make IL more effective especially regarding integrating it into mainstream curriculum are a problem. Most librarians claim that this problem emanates from the culture of teaching staff and their attitudes to information literacy as well as other issues relating to librarians' status and their place within the institution. Librarians complain that teaching staff do not regard them as peers when it comes to teaching status. According to De Jager and Nassimbeni (2005:31) academic librarians across the world acknowledge that one of their most serious challenges is to demonstrate to teaching staff the value of information literacy in the curriculum. From this discernment librarians argue that they do not get the required support in terms of accepting, promoting and teaching IL as part of the mainstream curriculum.

The study findings indicate that 96% of the librarians gave a Yes response to confirm that there were problems that hindered the effective implementation of IL. According to the findings, out of five options provided to librarians for ranking responses as to what extent or how significant certain options were considered as barriers, lack of understanding of the importance of IL by both teaching staff and administrators was ranked first as the most significant barrier by 75%, followed by lack of IL policy by 43.5%. In a third position were negative attitudes held by lecturers and administrators regarding the library and librarians by 26.1%. The findings from interviews with library directors and a library

head also supported the findings obtained from librarians. All library directors and the library head agreed that a lack of IL policy that would guide IL implementation measures was a problem. They also supported the argument that lack of awareness on the importance of IL for student's academic performance also hindered IL initiatives.

Similarly, the study found that the views expressed by librarians and library directors regarding barriers affecting IL, generally concurred with those expressed by Deputy Vice Chancellors and Faculty Deans. The study found that the majority of Deputy Vice Chancellors and Faculty Deans, 66.6%, agreed with the claims expressed by librarians while 33% opposed them. Some of the reasons given in support of librarians' claims included the library not being given its due status within the university structure, conservatism among lecturers (in particular old lecturers) who were cited as being difficult about accommodating changes. Because of their difficulty in accommodating changes in one way or another they were also regarded as tending not to appreciate the role that could be played by IL.

However, when looking critically at the claims levelled by librarians and partly supported by Deputy Vice Chancellors and Faculty Deans that some lecturers and administrators do not support IL initiatives as indicated under 5.3.4.3, it can be found that rather than to university policies, to a great extent those reasons are more likely to be linked to individuals' personalities and to the specific personalities of some administrative staff. This is construed from the fact that there is no proof of any official university policy that can categorically be cited as one that undermines library services and other activities initiated by librarians. It is true that some individual administrators may not be "library friendly" and for that reason in one way or another they may not be supportive of some library issue. Likewise, teaching staff whose education background did not involve aspects of IT and those who are not prepared to learn new aspects such as new teaching methods, new teaching tools and IT skills may also be regarded as difficult concerning accepting and adopting new ideas. It is from such situations that the library finds itself with problems in getting adequate support for the approval of various library initiatives such as IL teaching and issues related to the allocation of funds and other resources,

including human resources. Therefore instead of complaining, librarians should take this as a challenge they need to tackle in order to push through their agenda.

The claims made by librarians against teaching staff, that they are opposed to IL initiatives were also not supported by the findings of the study. As shown under section 5.3.5.3 that the majority of the teaching staff, 50.4% and 39.1% respectively, supported "strongly agree" and "agree" responses to mainstreaming IL. This means 89.5% of teaching staff were in support of IL. Teaching staff support for IL is also demonstrated by teaching staff's willingness to be involved in designing IL curricula. The study found that 41% and 26.7% were willing to be involved in designing and teaching respectively. This is testimony that teaching staff are not against libraries per se and that a good number of them are interested in library activities. It is incumbent upon librarians to take advantage of that potential support to promote IL initiatives.

In the same vein, 16 (87%) of the Deputy Vice Chancellors and Faculty Deans agreed that it was high time for Tanzanian universities to mainstream IL and that they were prepared to accept and approve the proposal to mainstream IL if librarians made a case in a convincing manner. All these are clear indications that if librarians can come forward with sound IL proposals they are most likely to receive the needed support. In this regard the claim made by librarians that lack of understanding of the importance of IL by lecturers and administrators, as well as negative attitudes held by lecturers and administrators do not carry weight.

On the other hand, the study found that for Deputy Vice Chancellors and Faculty Deans who opposed the claims of librarians put forward the argument that administrators did support various library initiatives and further argued that a major problem was a lack of proactiveness among librarians themselves. The argument raised by Deputy Vice Chancellors and Faculty Deans in criticism of librarians, is also supported by some responses given by librarians themselves. Of the librarians, 26% ranked lack of proactiveness among librarians in the first position as most significant barrier for IL

development. Lack of proactiveness among librarians has also been discussed by other authors such Shiew and Walter (2004) and Bundy (1999).

As far as this study is concerned the researcher is of the opinion that the most significant barrier for IL in the institutions studied was lack of IL policy. According to Ranson (1995:440)

> *Policies are statements that are typically expressed both in utterance and textual form. They have a distinctive and formal purpose for organisation and governments: to codify and publicise the value which are to inform future practice and encapsulate prescription for reform ... Policies are oriented to change and action, providing public intent of transforming practice according to ideal values.*

A policy provides guidelines and direction for the implementation of a particular aspect as a prescription for reform. The presence of IL policy would provide goals, objectives and strategies for all IL undertakings that should lead to the development, promotion and implementation of a systematic and sustainable IL programme (s). These views are partly shared by De Jager and Nassimbeni (2005:35) by pointing out that a policy serves to formalise and publicise the values that determine the practice and its legitimacy. While the study did not test specifically for this effect the lack of IL policy in the universities under study is likely to have contributed to IL activities to being undertaken unsystematically as there are no university frameworks to guide IL undertakings.

However, IL policy can only be adopted if librarians become more proactive in initiating and spearheading various activities that they consider important within their institutions. In this respect advocacy for IL becomes an important tool for librarians. Advocacy is vital in order to secure administrative support. Administrators depend on the experts in each discipline to inform them of the changes in the field (Hunt and Birks 2004). In the same vein Bruce (2001:113) observes that it is high time for information literacy innovators to make a stronger stand about the nature and value of their work to the rest of the higher education community. This cogent argument is endorsed by the findings of the present study. In the same vein Owusu-Ansah (2001:282) observes that hitherto librarians have failed to define clearly, defend intellectually, and articulate forcefully the role of the

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academic library in the intellectual enterprise of the college and university. Such impediments are the ones that librarians have to overcome so that they can put forward and table their various agendas for discussions within their respective institutions.

It is therefore important that librarians take the challenge of spearheading IL as an agenda that needs to be recognised within their institutions. Under section 5.3.4.2 it has been highlighted that HIV/AIDS and Gender policies are implemented in two universities; obviously these policies did not develop in a vacuum, there were people who actively advocated that those issues become institutional policies. The same needs to be done for IL; librarians should advocate its recognition, they should persuade, sensitise and educate all members of the entire university community about the importance of IL so that it becomes recognised institutionally.

6.7 Recommendations for strategies for IL approach to be adopted by higher learning institutions in Tanzania

One of the objectives of this study was propose the best approach that could be adopted by higher learning institutions in Tanzania for the effective implementation of IL programmes. In order to fulfil this objective, respondents were required to give their views on a number of issues that are considered to be pertinent for effective implementation of IL programmes.

One of the most discussed issues regarding the effectiveness of IL programme is how it should be delivered. As discussed under 3.7.1, the majority of IL authorities agree that to become more effective IL should be taught as part of mainstream curricula and in the context of students' specific disciplines. IL programmes can use different models including stand-alone courses/classes, course-integrated instruction, online tutorials, workbooks, and course-related instruction. IL can also be delivered as instructional enrichment to an existing course commonly taken by all students. IL can as well be a credit or non-credit course delivered to students as optional or compulsory programmes (Rockman 2002:190-191). In trying to find out what would be a suitable approach,

respondents in this study were required to give their views regarding the alternatives discussed above.

6.7.1 Mainstreaming IL in the curriculum

The study found that the majority of the respondents were in favour of mainstreaming IL in the curriculum. This is indicated by 72% and 28% of librarians who gave "strongly agree" and "agree" responses respectively to support the proposition to mainstream IL in the curriculum. The same trend was shown by teaching staff of whom 50.4% gave a "strongly agree" response while 39.1% gave an "agree" supporting the mainstreaming of IL. Of the students, 50.2% and 39.5% responded with "strongly agree" and "agree" responses, respectively, in favour of mainstreaming IL in the curriculum.

Regarding the extent to which the issue of mainstreaming IL in the curriculum is supported or not supported by administrators, the study findings found that Deputy Vice Chancellors and Faculty Deans were also in favour of it; 87% supported it. The same was true of Library Directors and the Library Head; all the three interviewees in this category supported the mainstreaming of IL in the curriculum.

In spite of this general support from the majority of respondents, the study found that a relatively low number of the respondents, 10.5% of teaching staff, 13% Deputy Vice Chancellors and Faculty Deans did not support the mainstreaming idea, while 6.1% of the students could neither agree or disagree with the proposition and 0.2% gave a strongly disagree response. The reasons given by library directors and the library head against the proposition include lack of an adequate number of staff and inadequate resources. Fear of an additional workload for students, a compacted timetable and lack of academic status for IL were reasons given by students, Deputy Vice Chancellors and Faculty Deans. From the findings of the study it can be concluded however, that mainstreaming IL in the curriculum is supported by the majority of university stakeholders (administrators, teaching staff, librarians and students). As shown under section 5.3.5.3, 87% of the Deputy Vice Chancellors and Faculty Deans agreed and they were ready to accept and approve the proposal to mainstream IL if librarians submitted one to them. What is

important for librarians then, is to come up with a strong carefully motivated proposal that could win the support of those stakeholders.

While the mainstreaming of IL enjoys widespread support, it is also important to observe that some important factors need to be taken into account for mainstreaming to proceed smoothly. These factors include adequate staff and teaching resources, which as far as this study is concerned are the main factors that affect mainstreaming. The four universities under study have different levels of resources in terms of both human resources and non human resources. Taking these factors into consideration, only two universities at the moment are able to conduct IL programmes in an adequate manner. The other two are not in a position to do this mainly because they are handicapped by shortage of staff, specifically librarians, as well as by a lack of other resources such as CD-ROMs, OPAC and PCs as reported under 5.4.2. However, as short term measures the two universities could use other approaches such as workbooks, and the intensive use of leaflets.

Regarding some problems associated with workloads for students and compacted or overloaded timetable, these problems could be overcome through sensitising all stakeholders to the importance of IL so that they could conceive of IL as a foundation requirement for all academic units instead of regarding it as an entity that is being added simply as an additional workload. In this way both students and teaching staff are more likely to accept and accommodate it and consequently give it a space as an important aspect of both teaching and learning.

6.7.2   Approach to IL delivery

As pointed out under section 3.9, IL can be delivered using various approaches such as making it a stand-alone course or an integrated course, credit or non-credit earning course, compulsory or an optional course. Respondents in this study were asked to give their views on this issue.

6.7.2.1 Standalone course or an integrated course

The study found that librarians were almost divided equally between teaching IL as an integrated and standalone course, this is shown by 50% out of 24 librarians who preferred teaching IL as an integrated course as the most effective approach and 54.5% out of 22 librarians who rated a standalone course as the most effective approach. These two approaches were followed by web page tutorials rated as fairly effective by 54% out of 22 respondents. One-shot group sessions were also rated as fairly effective by 36.4%. The same findings for IL teaching approaches were found among student respondents. Of the students, 69.3% were in favour of IL being taught as a standalone while 30.7% were in favour of IL being taught as part of another course. Like wise, library directors and the library head favoured IL being taught as an independent course. Of the teaching staff, 70.5% supported IL being taught as an independent course. Among the reasons given in favour of a standalone course is to allow an IL course to become more comprehensive with a broader coverage.

In a way the findings pertaining to librarians' preference for a stand alone course reflect observations by De Jager and Nassimbeni (2005:27) that many librarians were still most comfortable with the traditional "information skills" component of IL education, that is with courses that are generic and standalone. On the other hand, one may be tempted to believe that librarians are in favour of a standalone course because of their conviction that they should dominate IL offerings as IL is a library domain as shown by their view that they are the right people to teach it.

While the majority of the respondents (including librarians) have favoured teaching IL as a standalone course, it is important to think critically about how IL should be taught in order to achieve the best intended outcomes because there are more disadvantages to teaching IL as a standalone course than vice versa. One of the disadvantages of a standalone is its tendency to concentrate on imparting generic skills related to general process of retrieving and evaluating information instead of imparting skills required for knowledge or doing research linked to a specific subject area (Grafstein 2002:197). On the other hand, Parker (2005:35) is of the view that standalone programmes divorce IL from the rest of the students' studies and as a result, are only concentrated on by students

who recognise the value of being information literate. Those who see it as a peripheral are likely to resist spending study time on a standalone course. In order to achieve the best outcome, information literacy teaching needs to be taught as an integral part of a particular field or discipline. In this regard, unless circumstances necessitate, standalone courses should be avoided to pave the way for an integrated course.

6.7.2.2 Compulsory and /or non-credit course vs optional and credit or non-credit course

The study found that majority of respondents in each category supported IL being taught as compulsory and credit earning. A compulsory and credit earning course was supported by 68% of librarians, 62% of teaching staff, 60% by Deputy Vice Chancellors and Faculty Deans. The support from students came from 57.2%. The main reasons for the support for a compulsory and credit-earning course were because of the potential to induce a serious attitude to IL among students and its importance in students' learning. In this regard, the respondents were of the view that IL is important for all students because it promotes learning skills among students. The views expressed by respondents regarding a compulsory course are good ones for without that both students and staff are less likely to take IL seriously. Equally important, if IL is regarded as an important foundation skill for students' learning, from which all of them should benefit, then the only way to make all students enrol for IL and acquire the intended knowledge and skills is to make the IL course compulsory as is the case in some universities such as the University of Pretoria, the University of Botswana and others.

In understanding the problem of teaching IL as a non-compulsory course, Skov and Skærbak (2003) observe that one of the challenges of teaching IL in a voluntary situation is how to engage students' attention. The two authors therefore stress that the conditions for achieving success in teaching IL is that students attend such a course and commit to it. However, it is unlikely the two conditions can be met in a non-compulsory situation. Skov and Skærbak (2003) argue that students need to be motivated to attend IL courses and they give the most important motivating factors as:
- Courses should be compulsory because it increases students' motivation

- If the course is not compulsory, it should be attached to courses that are credit earning
- If the course is not credit earning it should be mentioned in the study plan as an important prerequisite for effective study
- If the course is not mentioned in the study plan (or even if it is) student's IL competencies should be evaluated as a part of the assessment of the report/assignment or paper.

Although the option of treating an IL course as optional or an elective either as a credit or non credit earning course as supported by 16% of librarians, 21.3% of teaching staff, 13.3% of Deputy Vice Chancellors and Faculty Deans and 23% of students can reduce workloads for students and staff, the disadvantage(s) of taking that option weigh more heavily than the advantage(s). One of the disadvantages of making IL an optional/elective course is that of creating uneven levels of IL knowledge and skills among students. This may also create higher levels of probability of having many graduate students who are not skilled and knowledgeable in effective information use mainly because not all of them will opt for the course. The outcome of having an elective/optional course is mentioned by Somi and De Jager (2005:261) when they refer to a computer literacy training course at Fort Hare University where they observed that, because of the payment involved (R1500 has to be paid to attend this course) and because the course was not integrated into the curriculum only a few students had been able to participate. They conclude that students who are not able to afford the course lacked these skills. Whether the students fail to attend the course because of the cost or not, the issue is that students miss the opportunity to acquire the intended skills because the course is not compulsory.

On the other hand teaching IL as a credit-earning course besides its advantage of providing social context as a conceptual framework for instruction as pointed out by Young and Harmony (1999:57), a credit–earning course encourages students to become more focused about it because they expect to be rewarded for their investment in IL. Reeves, Nishimuta, McMillan and Godin (2003:60) are also of the opinion that teaching IL as a credit bearing course makes students more adept at finding information.

6.7.2.3 IL as part of another course

As pointed out earlier IL can be taught as part of already existing course. In this approach IL is treated like a standalone course the difference is that in this aspect IL is taught as part of another course that may be considered suitable. In this study, responses given by respondents for teaching IL as part of an existing course was supported by 40% of librarians, 29.5% of teaching staff and 30% of students. The courses that were proposed as a base to which IL could be attached by both librarians and teaching staff were Communication Skills, Research Methods, Computer Science and Information Technology.

Teaching IL as an independent or part of another course has advantages and disadvantage (see sections 5.3.5.2 and 5.3.5.3). Teaching IL as an independent course is advantageous in that, adequate time and in depth coverage of the subject is guaranteed. On the other hand teaching IL as part of another course can enable it to emerge as part of the curriculum, especially in an environment where IL is being newly introduced. However, for it to attain its own status and continuity an adequate amount of time should be allocated to that particular course where IL is attached otherwise there might a danger of it being overshadowed.

As far as the four institutions under study are concerned, IL can be taught in a sustainable way as part of Communication Skills course. This course was proposed for that purpose by 56% of teaching staff and 47% of librarians. Communication Skills is a common course taught to all first year students in all four universities. Research Methods can also be a good option for being attached to IL, however Research Methods can be regarded as more suitable for senior students mainly 3rd and 4th year because they are usually offered such courses.

6.7.2.4 Staff to be responsible for IL teaching

As discussed under section 3.8 there is a debate concerning who should be responsible for teaching IL. One camp is in support of librarians as the ideal people to teach it while the other is for teaching staff. In this study respondents were also requested to give their

views regarding this issue. It was highlighted under 6.3.4 that the majority of librarians 72%, the two Library Directors and a Library Head interviewed, were in favour of IL being taught by librarians. The main reason given for their support of librarians was that librarians are experts in IL while teaching staff lack IL skills.

Findings from teaching staff on the same issue indicated that of the teaching staff 49.2% were in favour of librarians being responsible for teaching IL while the second preference was a combination of librarians and teaching staff. This was indicated by 48.1% of the teaching staff respondents.

On the question of designing IL curriculum, the study found that the majority of teaching staff 83.7% was in favour of librarians and teaching staff working together to design IL curriculum while 14.7 were in favour of librarians designing the curriculum. Students gave almost similar responses regarding this issue. Of the students 47% were in favour of IL being taught by lecturers and librarians while 33.1% were in favour of librarians. These findings not only indicate that teaching staff recognise the role that librarians can play in IL but have also shown teaching staff readiness to participate in IL activities. This is shown by 41% of teaching staff indicating that they are ready to be involved in designing the curriculum, and 27.5% who were designing curricula and teaching. The main reason given by teaching staff for preferring to team up with librarians in IL activities was to be able to create an opportunity to share knowledge and experience among them. These views conforms with those given by Hunt and Birks (2004), that collaboration between librarians and teaching staff allows the two professional groups to contribute their expertise and specialised knowledge to the university curriculum. According to Carlson and Miller (1984) as cited by Hardesty (1995:342) "no matter how hard librarians work, without the cooperation and support of teaching staff, programmes in IL will be unsuccessful or severely limited". It is in such a situation that Curzon (2004:35) observes that failure of most of IL programmes is caused by their being too parochial and programmes are seen as a library effort. Curzon (2004:35) therefore points out that librarians should forge efforts to make the information literacy programme part of the educational strategy for the university and not part of the service programme of the

library. Making IL an integral part of the university's educational strategy cannot be achieved by librarians alone, collaboration and alliances are important. According to Doskatsch (2003) collaboration, alliances and co-operation between librarians and other educators is the key to the integration of information literacy within the total education process. In other words, IL should have a university wide outlook and acceptance. Having a university wide outlook for IL requires the inclusion and collaboration with teaching staff in all activities pertaining to IL.

It is therefore important for librarians to foresee what the consequences may be with a lack of collaboration. For example, it is likely that most of the teaching staff would be reluctant to and sceptical about participating in IL activities that are not part of a formal programme or being involved in programmes they had not been invited to make a contribution to. This is a challenge for librarians. Librarians should recognise that although they are experts in IL issues they should be ready to invite the teaching staff to participate in IL activities as long as they are available and they are willing to do so. It is in this way that IL can get firm recognition university wide.

6.8   Summary

This chapter has interpreted and discussed the findings of the study. In general terms the study has found that at the moment the promotion of IL in the universities under study is still at its formative stage. Lack of IL policy, absence of a formalised programme, lack of resources including an adequate number of qualified librarians, in some universities computers and lack of time are contributing factors to the non-effectiveness of IL programmes. However, the study found that in spite of the above mentioned challenges there are some potential opportunities for IL being practiced in a more systematic and effective approach. Some specific issues regarding these challenge and opportunities are outlined below.

1. In all four universities under study, IL is practiced using a combination of methods that include lecture, orientation, hands-on practice, web pages and seminars.

However the methods used for IL training are generally not effective because in various respects they are not sufficient in the way they are used. The reasons for their non effectiveness include:

- Absence of allocated official time in the main timetable that leads into IL sessions being attended by students on a voluntary basis. This situation does not ensure that all students acquire the intended knowledge and skills, while those who do attend are not able to attend regularly and acquire the skills in a consistent sequence.

- IL information provided through a library web page of one university under study is very limited in terms of creating an effective impact for IL skills. In addition, there is no reliable system or mechanism for ensuring that students follow and learn what is provided on the web page.

- Lack of current awareness for providing information to both students and staff about the presence of services available for them, also leads to the IL education and training that is in place being attended by very few students. Lack of awareness also affects other issues including the utilization of various resources that are available.

- Non-involvement of teaching staff leads to IL not receiving university wide recognition because it remains confined within the library and is practiced by librarians themselves.

- Lack of adequate time and inadequate number of PCs and other resources such as CD-ROMs and bibliographic tools.

2. IL literacy programmes in the universities studied, covered relatively adequate aspects of IL, with information search skills being given more weight. It is important to provide a balanced training that would enable students to acquire skills in all aspects of IL.

3. Assessment/evaluation of IL activities in the universities under study is weak. Evaluation is mainly carried out through examination and soliciting feedback about students' IL skills gained during the programme by means of evaluation forms. Assessment and evaluation of the teaching methods is not done at all. Different

approaches including evaluation of teaching methods and the use of different evaluation and assessment methods for students such as checklists, interviews and oral questions need to be strengthened.

4. Practice by teaching staff in encouraging students to acquire knowledge and skills in IL such as searching and discovering and using different information sources is not adequate motivation for students to become effective and serious information searchers. Most of the teaching staff require their students to go to the library on their own and consult the librarians as the main way of making their students get exposure to the use of library and other information sources. This limitation indicates that teaching staff are not very interested in following-up in order to know exactly how their students fare in using library resources. There is a need for a change of attitude or perception among teaching staff as to how their students should use information resources. Teaching staff need to collaborate closely and communicate with librarians to provide guidance to students. They also need to follow up in making sure that their students use the library and information resources.

5. Students' competencies in using various information recourses are greatly affected by their pre-university backgrounds and experience. This is because most of the students attended schools that had no libraries or schools with libraries that did not have trained library personnel. Thus only a few students had received some kind of library instruction. For this reason, very few students attended university with transferable skills for information use that would have enabled them use a university library effectively. In order to alleviate this situation, the following measures both at university and national level need to be considered:
   - Strengthening of or introducing a comprehensive IL programme
   - Provision of adequate resources to support the training
   - Librarians becoming more dynamic in applying different teaching and marketing strategies
   - Sensitising the teaching staff on the importance of IL

- Improving teaching methods on the part of the teaching staff so that the methods applied are student centred and can motivate students to control their own learning instead of relying on their lecturers
- Improving reading culture, and the quest for knowledge among Tanzanians
- Strengthening library services in both public and schools.

6. Student's information use patterns are relatively even, however, there is also heavy usage of some resources such as reference material, the Internet and newspapers. The use of newspapers is an indication of awareness among students of a need to keep up to date with local and international issues including political, social, economic as well as leisure and recreational. The heavy use of reference material and the Internet is owed to their convenience as a means of accessing their information.

However, the students' heavy use of the Internet is not commensurate with the necessary skills for its use. Students demonstrate that they are familiar with a checklist model (authority, accuracy, objectivity and currency coverage) for evaluating Internet information, but they were not familiar with other criteria such as judging facts and opinion, popular against academic information as well as the audience for which the information is intended. It is important particularly as a crucial aspect of IL to equip students with the ability, knowledge and skills to evaluate Internet information in a more critical way so that they can use it effectively.

7. Weaknesses demonstrated by students in the use of CD-ROM data bases and poor usage of online journals can be translated into:
- Lack of some of the electronic facilities such as CD-ROMs in two of the universities under study
- Poor information search skills among students
- Students' reliance on the materials prescribed by lecturers.

This situation calls for libraries being provided with various electronic resources and highlights the need to impart to students the knowledge and skills that will enable them to effectively and efficiently use the available resources.

8. Students have a relatively good competence in the use of computers particularly in word processing and Windows operating system. However, they indicated weaknesses in the use of computer packages such as SPSS, SAS and Excel. These weaknesses can be interpreted as being a result of differences in degree programmes undertaken by students and the need for particular programmes with skills in specific computer package(s). On the other hand, requirements by some lecturers for students to submit assignments that are word-processed or presented in certain computer formats is a catalyst for students' familiarization and learning on how to use various computer applications such as Microsoft Word. It is important that students should be exposed to various computer programmes that can applied to different functions.

9. Although students have been revealed as relatively competent in the use of some electronic resources they still need training in some areas in order to increase or acquire additional and appropriate skills in the use of those resources. Students lack skills and competence in other IL related areas such as searching for information from electronic sources, formulation of search strategies, establishing key words, topic analysis and evaluation of information. Students also need to know how to use print sources of information such as bibliographies and indexes. Thus students need to acquire skills and competencies in the use of all sources of information regardless of their formats.

10. Students lack adequate skills in the effective use of both electronic and non-electronic electronic information sources. Students' ratings as moderately information literate is a clear indication and acceptance that students have not reached an adequate level of being considered as information literate and therefore need to be assisted in order to acquire the knowledge and skills.

11. Students have relatively acceptable levels of awareness in the ethical use of information. The weaknesses shown in respect of photocopying entire books on the basis of a book shortage is perhaps a reflection on the scarcity of books in the institutions under study. From the researcher's observation, a shortage of reading

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material, especially recent publications, often leads to students engaging in photocopying practices that are contrary to copyright regulations. Students need to be reminded that the ethical use of information is a necessary practice and a responsibility of all information users.

12. Some of the reasons that were considered as barriers hindering IL initiatives could not be supported by this study. These barriers were a lack of understanding of the importance of IL by both teaching staff and administrators and the negative attitudes held by lecturers and administrators towards the library and the librarians. These two reasons could not be regarded as barriers as throughout the study both lecturers and administrators were in many ways in support of IL. The supporting elements included:
    - Teaching staff's readiness to take part in designing an IL curriculum and teaching it
    - Support in favour of IL being mainstreamed into the curriculum
    - Willingness to accept a proposal to mainstream IL
    - Recognition of librarians' suitability for teaching IL

13. Lack of an IL policy that would provide guidelines and direction for implementation of IL activities and lack of proactiveness among librarians are the main factors that can be regarded as barriers to IL. It is therefore important that librarians take the challenge of spearheading the recognition of IL, university wide. Librarians should advocate it, they should persuade, sensitise and educate all members of the entire university community on the importance of IL.

14. Mainstreaming IL into the curriculum is supported by all university stakeholders including librarians, teaching staff, students and administrators (Deputy Vice Chancellors and Faculty Deans). A small proportion of those stakeholders do not support the mainstreaming idea for a number of reasons that include: lack of adequate staff and inadequate resources, fear of additional workload for students, compacted timetables and lack of academic status for IL.

15. On the basis of two factors, inadequate staff and teaching resources, only two of the universities under study are at the moment able to conduct IL programmes in an adequate manner. The other two are not in that position mainly because they are handicapped by a shortage of staff, specifically librarians, as well as of other resources such as CD-ROMs, OPACs and PCs.

16. Regarding problems associated with the workload for students and compacted or overloaded timetable, these problems can be solved by sensitising all stakeholders so that they can see IL as a foundation requirement for all academic units instead of regarding it as an entity that is being added as an additional workload.

17. Librarians were almost divided equally between integrated and standalone courses as approaches for teaching IL. Among the reasons given in favour of a standalone course is to allow an IL course to be taught more comprehensively with a broader coverage. The main reason for librarians' preferences for a standalone course was because of their conviction that they should dominate IL as their domain as shown by their view that they are the right people to teach it.

18. One of the disadvantages of a standalone IL course is its tendency to concentrate on imparting generic skills related to general process of retrieving and evaluating information instead of imparting skills required for knowledge or doing research linked to a specific subject area. This situation has high possibility of receiving minimal attention from students because most of them may consider it as a peripheral learning aspect. In order to achieve the best outcome, information literacy teaching needs to be taught as an integral part of a particular field or discipline.

19. Compared to an optional and a non-credit course, teaching IL as compulsory and credit earning is conceived as more appropriate for the following reasons:

- IL is an important foundation skill and knowledge base for students' learning. The only way to make all students attend and acquire the intended knowledge and skills is to make the IL course compulsory for all of them
- Making IL compulsory encourages both students and staff to take IL seriously.
- A credit bearing IL course tends to make students become more focused as they expect to be rewarded for their attendance
- An optional/elective course creates uneven levels of IL knowledge and skills among students
- Teaching IL as optional may result in a situation of many graduate students who are not skilled or knowledgeable in effective information use as not all of them will opt for the course.

20. Teaching IL as an independent course may provide an opportunity to teach it adequately in terms of time and in depth coverage as well as enabling it to emerge as part of the curriculum. On the other hand when IL is taught as part of another course, in order for it to gain firm acceptance and acquire its own status and continuity an adequate share of time should be allocated for the course to which IL is attached. In the event that those conditions are not being considered, there may be a danger of IL being overshadowed by the content of the other course.

21. As far as the universities under study are concerned, IL can suitably be taught as part of a Communication Skills course. Communication Skills is a common course taught to all first year students in all four universities. IL can further be taught as part of a Research Methods course, mainly taught to 3rd and 4th year students. Teaching it as part of Research Methods can be very useful for students when preparing to write their final independent study projects.

22. Making IL an integral part of the university educational strategy through mainstreaming it cannot be achieved by librarians alone. Librarians ought to recognise that although they are experts in IL issues they need to collaborate with teaching staff both for teaching and designing IT curriculum and course content.

Collaboration between librarians and teaching staff allows the two professional groups to contribute their expertise and specialised knowledge to the university curriculum. Instead of librarians taking IL as their private domain, they should be willing to invite the teaching staff to participate in IL activities because it is in that way IL can get firm recognition university wide.

Chapter Seven

Summary of study findings, conclusions and recommendations

7.1 Introduction

Chapters five and six respectively presented and interpreted the data from the study. Drawing on those two chapters, this chapter is concerned with giving a summary of the findings and conclusions from the study. The chapter also gives recommendations for action as well as areas for further studies regarding IL. The purpose of the study was to investigate the status and practices of IL in Tanzania's four major universities (UDSM, SUA, SAUT and IUCO) in order to establish the basis for strategies that could be adopted to introduce and develop effective IL programmes in higher learning institutions in Tanzania. This broad objective was guided by the following research questions:

1. What is the state of library instruction (as an aspect of IL) with respect to the following:
   - Type of instruction
   - Methods of delivery and their effectiveness
   - Staff involved in teaching IL (are library staff and academic teaching staff involved in teaching IL?)
2. What teaching practices or methods are used by lecturers promoting IL knowledge skill among students?
3. What is the level or state of IL competence among students in relation to:
   - Information searching skills using electronic and non electronic sources of information?
   - Skills and levels of literacy in the use of various computer applications?
   - Knowledge and skills in information evaluation?
   - Knowledge and skills information organisation?
4. What are the barriers that influence effective implementation of IL programmes?
   - University policies
   - Availability of resources

- Attitudes and behaviours among staff and students
- Knowledge, skills and competence among staff in teaching IL
- Time and sufficient staff

5. What strategies and what approaches can be adopted for the effective implementation of IL programmes?

7.2 Summary of the study findings

This section presents a summary of study findings in relation to the purpose of the study and the research questions that guided the study as highlighted above.

7.2.1 The library instruction that is practiced

The study revealed that all four universities under study practiced different forms of instruction that were intended to provide students with IL knowledge and skills for effective information resources usage. Students were taught a combination of IL skills mainly in a generic form that included information searching, use of various library resources, information evaluation and citation and referencing. The training for IL was primarily undertaken by librarians (both academic and non-academic). The forms of instruction used mainly included lectures, orientation, hands-on-practice, seminars and reference to library web pages. However, ideal practices for teaching IL were affected by a number of issues including:

- *Time constraints*

  Apart from the orientation programme that is undertaken at the beginning of every academic year for new students, other IL sessions were not allocated official time within the university academic timetable. This state of affairs leads to IL sessions conducted by librarians being undertaken by students on a voluntary basis in their own time. For this reason not all students got an opportunity to attend IL sessions while for those who did, their attendance was most likely to be patchy. On the other hand IL sessions that took place following requests from individual teaching staff were not widespread because there was no policy in place that obliged teaching staff to ask that IL sessions be organised for their students. Bearing in mind the importance of IL for students, this situation is not to their advantage.

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- *Inadequate resources*

  A lack of adequate resources including human resources, PCs, CD-ROMs and bibliographic tools is among the factors that led to the non-effectiveness of IL programmes. The study revealed that two universities under study did not have CD-ROMs and bibliographic tools like indexes and abstracts, while one university did not have a librarian trained at degree level.

- *Lack of awareness*

  Lack of awareness about the presence of IL sessions on the part of students also affected those students who would have been regular attendees of IL sessions. The study revealed that 49% of the students were not aware of the availability of IL training sessions. Non-involvement of teaching staff in IL activities also contributed to making students unaware.

7.2.2 Teaching practices or methods that are used by lecturers promoting IL knowledge and skills among students

The study revealed that a significant number of teaching staff (69%) were aware of the availability of IL sessions. In addition, motivation in terms of their teaching practice, to encourage and engage their students in deeper IL activities such as searching and using information from different sources, was not sufficient to create strong enthusiasm among students. Although most of the teaching staff, 95%, required their students to use additional sources of information as well as those that they prescribed, their ratings for their requirements for students to search and come up with new information sources was moderate at 45.3%. This was mainly attributed to the use of lectures as their dominant method for teaching. Active learning and student centred teaching methods were minimal. Further to this, the study revealed that the majority of teaching staff preferred their students to go to the library on their own as their method of exposing them to information resources.

7.2.3 Level or state of IL competence among students

The study also investigated students' levels in terms of their competencies regarding various IL aspects. This investigation included an exploration of their background in their use of library resources at school level, information use patterns at university level and competencies in specific IL aspects such as computer skills, use of various information sources like the Internet, CD-ROMs, ethical use of information et cetera.

The study revealed that the majority of students attend universities with inadequate knowledge and skills to make effective use of the library. This was because the schools they attended did not have libraries or their school libraries did not have sufficient resources, including trained library personnel who could have provided some training for them.

In terms of frequencies for using various information sources and performing various information seeking tasks, students generally indicated a relatively even pattern. However, there were some areas where students demonstrated intense and lower use frequencies. The study found that students showed heavy usage of reference materials, searching the Internet, reading newspapers and magazines for both local and international political, social, economic and sports information, while they demonstrated lower frequency in the use of short loan/special reserve and East Africana collections, reserving books that were on loan, using bibliographic tools for information searching, downloading online journal articles, and using CD-ROMs to find information.

On the subject of competence in the use of various information resources and computers, the study found that there were both weaknesses and strengths in this regard. Students indicated they were relatively competent in the use of computers, especially word processing and Windows operating systems, however, students demonstrated weaknesses in the use of some computer packages such as SPSS, SAS and Excel. Students also demonstrated incompetence in the general use of electronic information sources such as CD-ROM databases, as well as skills in the general information search from electronic and non electronic sources particularly abstracts and indexes.

Concerning the ethical use of information, the study showed that students were relatively aware of a number of aspects related to ethical information use such as copyright, intellectual property and plagiarism.

The study also found that the general rating regarding students IL level from both teaching staff and students' perspectives, was that students were moderately information literate in terms of knowledge and skills in the use of various information resources, while from the librarians' point of view the students' IL level was considered to be below the moderate level.

7.2.4 Barriers that influence the effective implementation of IL programmes

The study found that some of the factors that were considered by librarians as barriers for IL were not supported by the findings. Lack of understanding of the importance of IL by teaching staff and university administrators, as well as negative attitudes alleged by teaching staff and administrators towards library and librarians, could not be considered as barriers for IL. This was because responses given by teaching staff regarding the integration of IL in the main stream curriculum, an involvement with IL activities such as the teaching and designing of the IL curriculum, recognition of the position and role performed by of librarians in IL teaching, were all positive and supportive of IL and librarians.

Likewise the majority of Deputy Vice Chancellors and Faculty Deans were also in favour of integrating IL in the mainstream curriculum. However, the study established that the most significant barriers were lack of IL policy and lack of proactiveness on the part of librarians.

7.2.5 Strategies and approaches that could be adopted for the effective implementation of IL programmes

In spite of a number of issues such as additional workloads for students, a compacted timetable, and inadequate resources that are seen as problems associated with mainstreaming IL in the curriculum, the study found that mainstreaming IL in the

university curriculum was supported by the majority of all university stakeholders (administrators, teaching staff, librarians and students). Mainstreaming therefore was considered the best approach for introducing and implementing an effective IL programme university wide.

Regarding how best the mainstreaming of IL could be implemented, the study found that librarians were divided into two main blocks; those who preferred teaching IL as a standalone programme and those who preferred an integrated approach. On the other hand the study found that the majority of students, teaching staff, library directors and the library heads preferred IL being taught as a standalone course. It was also found that if IL were to be taught as part of another course, Communication Skills was the most likely course to which IL could be attached.

The study found out further that teaching IL as a compulsory and credit earning course was also favoured by the majority of the respondents in each category (Deputy Vice Chancellors and Faculty Deans, teaching staff, librarians and students).

In terms of what category of staff should be responsible for designing and teaching IL curriculum, the study found that librarians, library directors and the library head preferred librarians as the most suitable while the majority of teaching staff and students were in favour of IL activities being undertaken in partnership between librarians and teaching staff.

7.3 Conclusions about the research questions

This section gives conclusive remarks for each of the five research questions that guided the study.

7.3.1 Conclusion about the state of library instruction as an aspect of IL

Instruction used to impart IL includes orientation, lectures, web page and hands on instruction. Although the methods were used to cover relative aspects of IL, this instruction was not substantially effective in enhancing the IL knowledge and skills of

students. The instruction that was given was affected by a number of factors including inadequate time, inadequate resources and lack of clear policy. Because there was no official time that was allocated for IL within the university timetable, IL activities were undertaken on the basis of concern by the librarians who conducted IL sessions while students' attendance was voluntary. This situation negatively effected IL programmes. The situation was mainly aggravated by a lack of IL policy to guide IL activities in the universities under study. According to Ojedokun and Lumande (2005:119) the consequence of IL not being integrated into regular courses and not being timetabled compromises the effectiveness of IL, both in terms of theory and hands-on practice because IL is not accorded its due importance. As far as this study is concerned it can be concluded that the current IL practice was not effective.

7.3.2 Conclusion about teaching practices or methods that are used by lecturers promoting IL knowledge and skills among students

Although teaching staff had shown convincing awareness of the importance of IL for enhancing students' learning, their emphasis and advocacy in terms of need for their students to acquire adequate IL skills was low. It seems that acquisition of IL knowledge and skills among students was taken for granted, that by just going to the library students would be able to acquire the needed skills even without being given training.

7.3.3 Conclusion about the level or state of IL competence among students

Most of the higher leaning institutions students in Tanzania, enrol at universities and other institutions without the information skills necessary to be able to effectively use the resources that are available in their institutions. This observation is also shared by Machet (2005:180) in the case of South African tertiary education institutions. Students' incompetence is mainly attributed to their school backgrounds that did not provide them with those skills.

Given the inadequacies of IL programmes that were in place in the universities as discussed under section 6.2.1, students' level of IL competence has not reached a suitable level for them to be considered as information literate. Although students acquired certain

IL skills as they proceeded to senior levels of their university education, most of them lacked knowledge and skills in various IL aspects, including the use of electronic and non-electronic information resources, information search skills and information evaluation skills. In this regard more detailed and systematic training was needed to further improve students' levels of IL knowledge and skills.

7.3.4 Conclusion about the barriers that influence the effective implementation of IL programmes

In some of the universities under study there were deliberate initiatives that were intended to promote IL programmes. However, these initiatives were still in their infancy. The most outstanding barrier that may continue to impede IL initiatives is the lack of IL policies in the universities. The presence of such a policy would have provided some guidelines to ensure that IL activities are undertaken systematically. On the other hand, the lack of qualified library staff in some universities capable of conducting IL programmes as well as a lack of proactiveness and strong advocacy for IL among librarians is also creating impediments to IL activities.

7.3.5 Conclusions about strategies and approaches that can be adopted for the effective implementation of IL programmes

It has been shown throughout this study that there are different strategies and approaches that can be applied for delivering IL programmes. These approaches range from standalone or independent programmes to integrated ones, one-shot lectures or sessions that are part of another existing course. Another approach is to deliver IL through workbooks or web pages. Those approaches can also involve teaching IL as a compulsory or as an optional course that is credit or non-credit earning. However, the suitability of whichever approach is adopted depends on the environment in which a particular IL programme is to be implemented.

Nevertheless, the best approach to be adopted is the one that is able to reduce the inherent disadvantages that are involved within a particular approach. These drawbacks may

hinder effectiveness in imparting the intended IL objectives and their outcomes. As far as this study is concerned the strategies and approaches used to impart IL knowledge and skills need to be changed or improved.

7.4 Recommendations about the research findings

One of the objectives of this study was to come up with some possible recommendations that could be adopted by higher learning institutions in Tanzania to introduce and develop effective IL programmes. This section presents recommendations based on the findings that were generated from the five research questions that guided this study.

7.4.1 Recommendations about the library instruction practiced

It has been shown in this study under sections 5.3.1 that in all four universities under study there was a combination of various forms of instruction that were in use for imparting skills to enable students to use various information resources. However, in order to create considerable IL skills among students the instruction methods that are in place need to be improved by reducing and/or eliminating factors that in one way or another impede their effectives. Some of the recommended measures for improvement include the following:

- Efforts should be made to involve teaching staff in IL activities such as teaching and designing or proposing IL programme content. Appropriate IL activities conducted in cooperation between libraries and academic departments have been reported in South Africa in a number of universities and technikons by De Jager and Nassimbeni (2002), Ojedokun and Lumande (2005) for the University of Botswana and by Hosein (2006) at the University of West Indies.
- Evaluation and assessment of IL activities should be improved in order to ensure that there is proper mechanism for the evaluation and assessment of each teaching method that is used.
- IL teaching should be allocated adequate time. This would allow a balance between cognitive/theoretical and practical skills. Supporting this, Blakeslee, Owens and Dixon (2001:130) contend that the most effective learning environment for information literacy development is not only influenced by the

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context of a discipline, but also a practical context that would reinforce theory. Adequate time for IL teaching is also required in order to be able to develop appropriate content, instruction, solicit feedback or responses and for engaging students in active learning processes that would improve and fortify students' IL (Owusu-Ansah 2004).

7.4.2 Recommendations about teaching practices or methods that are used by lecturers promoting IL knowledge and skills among students

Although the study has shown that teaching staff recognised the importance of IL for students' learning, their levels of emphasis in terms of involving their students in deep IL activities was still low. Perhaps this could be because the teaching approach in use was mainly teacher centred instead of being student centred. There is a need for lecturers to shift their teaching approach to a student centred and resource based approach. In the same vein UNESCO also stresses the need for change in the way higher education should be conducted. In UNESCO's 1998 document 'World declaration on higher education for the twenty-first century: vision and action', under Article 9: Innovative educational approaches: critical thinking and creativity; it is stated that:

> *In a world undergoing rapid changes, there is a perceived need for a new vision and paradigm in higher education which should be student-oriented, calling in most countries for an in- depth reform ... to cater for ever more diversified categories of people, and of its content, methods, practices and means of delivery ... To achieve these goals it may be necessary to recast curricula, using new and appropriate methods so as to go beyond cognitive mastery of disciplines. New pedagogical and didactic approaches should be accessible and promoted in order to facilitate the acquisition of skills, competences and abilities for communication, creative and critical analysis, independent thinking and team work in multicultural context.*

The document states further that:

> *New methods of education will also imply new types of teaching-learning material...as lifelong learning education requires academic staff to update and improve their teaching skills and learning methods* (UNESCO 1998).

Through this broad approach to teaching as proposed by UNESCO, students will be required to engage in different learning activities and in controlling their learning, consequently as they will become more involved in IL activities it will be necessary for them to use and evaluate different sources of information in order to fulfil their learning requirements.

In addition to improving teaching methods, more sensitisation of teaching staff about the importance and role of IL for enhancing students' academic performance and for life-long leaning skills is needed.

7.4.3   Recommendations about the level or state of IL competence among students

Students' competencies in various IL aspects, including knowledge and skills in using different information resources such as the Internet, CD-ROMs, computer use skills, bibliographic tools, as well as the knowledge and skills required for information searching and evaluating have not yet attained a level sufficient for students to be considered as information literates. Therefore students' IL competence levels need to be improved and developed further. Measures that can be taken in order to create this improvement include those that are within the university's mandate while others are within a national mandate. The following are the recommendations in this regard:

- Universities should adopt a more systematic and comprehensive IL programme that would ensure continual education and training in terms of the theory and practice of IL.
- Universities' authorities should make sure that libraries are adequately staffed and run by qualified librarians. According to Pejova (2002) lack of qualified staff has resulted in difficulties in the development of meaningful information literacy programmes and projects that would lead toward optimal exploitation of the available information resources. It is upsetting to observe that one university under study had its library operating without a single staff member being a qualified librarian and university graduate. Instead, a volunteer with no professional training in library and information science was heading this library. Although it is encouraging to note that more universities are being established,

thus creating more opportunities for Tanzanians to achieve a university education, TCU should make sure that all important sectors that constitute a good academic institution including libraries, have qualified personnel.

- It has been shown under section 3.12 that IL is now recognised worldwide as necessary for every citizen. Under UNESCO's two global programmes 'education for all' and 'information for all' IL has gained recognition as a critical dimension in achieving the higher level goals for 'Education for all' and Information for all' (Zwimpfer 2006). In order to achieve IL objectives and maximise its benefits, Tanzania as a nation should emulate and appreciate what is taking place in other parts of the world as documented in this study. Therefore the following need to be considered:

    - ❖ IL programmes should be introduced from school level. This will not only enable students to increase and intensify their IL knowledge and skills stage by stage according to education level but also to improve the learning system in general. According to Moore (2002) IL is a potentially powerful focus for improvement initiatives because it is applicable in all areas of the curriculum at all levels and has implications for school organisation, management and structure.

    - ❖ Teacher education curricula should include a course on library and information science in which IL should be an area of concentration. In this way teachers will graduate with sound knowledge and skills that will not only allow them to work as knowledgeable teacher librarians but also to teach IL. Development of IL in schools as perceived by Henri (2001) cited by Moore (2002), is predicated upon the belief that teachers are themselves information literate. According to Loertscher and Woolls (2002:61) the idea of getting teachers to teach IL is also supported by Moore (2001) who observes that if teachers can teach IL the need of hiring professional library media specialists will be avoided. Moore (2001) observes further that rather than having nothing it is better to have the partially trained teacher to deliver IL.

The use of trained teachers will also eliminate the current practice of appointing an ordinary teacher with no background knowledge in library and information work to oversee school library activities.

❖ School and public libraries should be strengthened by equipping them with adequate resources including reading materials, ICT facilities and trained staff. The importance of resources for IL education is also stressed by Moore (2002) as she observes that education for IL requires that resources be used in order to create learning activities that promote critical interaction with and understanding of the information environment.

7.4.4 Recommendations about addressing the barriers that influence the effective implementation of IL programmes

In any organisation any course of action or mission is guided by particular policies. A policy is a set of principles and strategies that are laid down to guide the implementation of the mission or course of action. On the other hand in order for any policy to be implemented successfully there must be qualified and motivated people behind it. In this study, it has been revealed under section 6.6 that the universities under study had no IL policies and at the same time, librarians were seen to be less proactive. Shortage of qualified librarians has also been observed in this study. It is thus concluded that IL initiatives are mainly hindered by the lack of a policy and inadequacies relating to librarians. In order to overcome the aforementioned barriers the following recommendations are made:

- Libraries should have clearly stated mission statements regarding the predicted contributions and benefits of IL. It has been shown under section 3.12.5 that in Africa, South Africa has attained considerable achievements in terms of IL programmes. However, according to Underwood (2002) among the problems identified in IL initiatives in South African institutions was the non-inclusion of IL in their mission statements and strategic plans. Having a clearly stated mission statement visibly depicts the importance of IL within the institution.

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- Librarians as the main professionals who advocate IL development should spearhead the formulation of IL policy to be adopted by their respective institutions as well as for the entire nation. The importance of IL policy is clearly expressed by Bruce (2002) by stating that:

    International, national and institutional guidelines and policies can direct and support the adoption of information literacy education. Internationally and nationally, of fundamental importance are policies and guidelines regarding basic levels of information technology infrastructure and the need for an information literacy education programme...

- Librarians should adopt a more aggressive proactive approach and encourage measures that would ensure that IL is accorded its due attention. They should play an active role in raising awareness and drawing the attention of teaching staff and other institution stakeholders to information literacy so that its importance in facilitating student's learning, teaching and life-long learning is recognised and appreciated. The emphasis should therefore shift this debate to looking at and working out how best effective information literacy programmes can be implemented

Those measures should also be coupled with provision of sufficient and adequate resources.

7.4.5 Recommendations about strategies and approaches that can be adopted for the effective implementation of IL programmes

One of the objectives of this study was to recommend potential strategies and approaches that could be adopted for effective implementation of IL programmes in higher learning institutions in Tanzania. Through this study it has become evident that a more comprehensive and systematic IL programme is desirable. This has been shown from the fact that:

- Teaching staff and librarians have confirmed that students lack adequate IL knowledge and skills
- The majority of students have confirmed that their pre-university IL knowledge

and skills were inadequate to cope with the requirements for effective use of information resources at university level thus clearly indicating their need to get additional training in several IL aspects.

- Deputy Vice Chancellors and Faculty Deans also accepted the need for education and IL training among students.

The way forward is therefore to come up with an appropriate approach that would ensure the desired programme is in place. Various approaches that can be used for delivering IL programmes have been shown in this study; the advantages and disadvantages have also been discussed. However, what is agreed upon through the literature is that for IL to become effective it should be taught as an integrated programme. In this study as well, the majority of the respondents in all categories were in support of IL being taught as an integrated programme and mainstreamed in the curriculum. The respondents also favoured IL being taught as a compulsory and credit-earning course. In principle this is an IL teaching approach that should be adopted by higher learning institutions in Tanzania. Andretta (2006) observes that because IL is a fundamental requirement for a learning society, higher education institutions need to implement IL education as a top-down initiative where life-long learning initiatives are promoted by institutional learning and teaching policies and as a bottom-up approach to fully integrate these strategies in curricular activities.

However, in order to implement that approach the following factors need to be considered:

- Every institution has to consider its strengths and weaknesses in terms of being able to implement IL programmes using the approach discussed above. Of importance is the availability of staff both in terms of their number and ability to deliver IL programmes.
- The availability of adequate resources is another integral factor.
- Given the fact that IL is a new aspect in Tanzania's education curricula, consideration should be made to assess to what extent the institutions are ready to accommodate IL to be taught in the manner described above.

Taking those factors into consideration it is recommended that in order to start

implementing or introducing IL programmes, higher learning institutions should have long and short-term implementation approaches.

7.4.5.1 Short term approach

As a short-term approach IL should be taught as a standalone programme in which librarians could identify topics and develop IL sessions based on assessment of what students need to know. However, as already discussed in previous chapters a standalone approach is no longer adequate to impart a full range of IL knowledge and skills. Thus for institutions without IL programmes they should start a standalone programmes only as a promotional stage for opening channels for a longer term integrated programme. The short-term period should be used to concretise the following:

- Popularising IL and gaining teaching staff and students' support
- Identifying important teaching areas and their required inputs
- Conducting a critical evaluation of the programme as the preparation of more relevant sessions is taken forward according to feedback gained from both students and teaching staff.

7.4.5.2 Long term approach

As a long term approach to teaching IL, higher learning institutions should focus on teaching IL in an integrated way. IL instruction should be curriculum-based, that is directly related to students' course work and assignments. IL programmes should be conducted as independent courses or embedded in already existing courses. Under section 6.7.2.3 some of the courses that were considered suitable to be embedded and the factors to be considered in order to bring about effective IL teaching have been discussed. Depending on the prevailing environment, it is incumbent upon each individual institution to decide which approach to integration would be applicable. What needs to be insisted on here is that at this level the following should be implemented:

- Teaching staff should be involved in IL aspects including designing of the curricular so that they can determine the kind of knowledge, skills and resources to be taught. The importance of teaching staff participation in IL activities has been discussed in detail in Chapter Three.

- The IL programme should be compulsory and credit earning.

In the process of implementing IL programmes under this approach, the content of the programme may vary in one way or another depending on the circumstances at the time. Such circumstances may include the learner's background and the type of resources available. However, important components required in ensuring that IL learners acquire and internalise appropriate IL knowledge and skills should be taken care of in the course of IL teaching. In this regard the IL components proposed by De Jager and Nassimbeni (2003) as shown under section 3.14 are recommended. These components should also be linked to the standards, performance indicators and outcomes outlined in the document on IL Competency Standards for Higher Education by ACRL. By using the criteria for outcome measures provided in this document, it is relatively easy to measure the extent to which students have learnt appropriate IL skills.

7.4.5.3   Use of the orientation programme

An intensive orientation programme should precede both short and long term approaches to IL programmes. This programme should be used to provide an introduction to the library. Orientation sessions should be spread over a period of between two to three weeks so as to allow students to attend them in small groups and to give adequate time and should:

- Cover familiarization with the general regulations, library set up, collections and their classification, services that are available, using the OPAC/card catalogue
- Be conducted in small groups so that students are able to internalise the instruction.

This approach will eliminate the current practice of orientation whereby students are oriented to the library services in a period of one to two days. Because of the limited time allocated for the orientation, current sessions involve four to five groups of about thirty - forty students per group attending the orientation at the same time by rotating from one area to another starting from different positions. As a result of this approach there has been very little progress or impact made on knowledge and skills. This situation has denied students the opportunity to even internalise simple skills such as using an OPAC.

It is however important to stress again that IL can be integrated through the curriculum only if there is close collaboration between librarians and teaching staff. In order for this integration to be achieved, librarians need to become more active in their advocacy for IL when representing the library on various committees and any other fora that deal with student academic issues.

7.4.5.4 Consortium of Tanzanian University Libraries (COTUL)

Librarians in higher learning institutions should jointly use COTUL as their platform for formulating various strategies geared to develop and implement IL programmes. This should include sensitising the institutions' management and staff about the importance of IL, formulating policies and guidelines for good IL practice, conducting workshops and seminars on IL for various stakeholders including school teachers, education officers, corporate managers et cetera. COTUL can also be used for soliciting financial and technical assistance from international organisations and other institutions with long experience in IL in order to assist Tanzanian institutions in developing comprehensive, systematic and sustainable IL programmes through training and long-term projects.

7.5 Recommendations for further studies

As far as IL in Tanzania is concerned, this study has been the first empirical study to cover many institutions and almost all categories of university stakeholders. However, the study dealt with IL in a broad and holistic way rather than with in depth specific IL issues. The following areas, which also help to explain some of the findings of this study, are recommended for further study in the expectation that such studies may create an opportunity for improving and developing IL in the education sector and in Tanzania in general.

7.5.1 Studies on specific aspects of IL as evident in students

IL is a broad subject that extends from the art and science of finding, locating and evaluating information to using information in the the total research environment. IL places information in context by addressing its social, economic and legal issues. IL education also involves the organisation, processing, access, and retrieval and use

dynamics of information. Indepth studies on specific aspects of IL as evident among students and staff are needed. Some of the areas that can be studied include:

- Technological competencies such as knowledge and skills in the use of electronic sources.
- Information search and retrieval process behaviour.
- Use and impact of the Internet as a teaching and learning tool.
- Influence of a variety of pedagogical approaches used for teaching as they relate to IL skills acquisition.
- The needs and appropriate IL teaching methods for various information user groups such as distance learners and mature students.

Such studies could be used to diagnose a number of drawbacks pertaining to IL knowledge and skills in the whole process of teaching and learning.

7.5.2 Study on the school library system

It has been observed in this study that IL teaching should start from school level. At this time when Tanzania has embarked upon an intensive education development programme under ESDP, there is a need for conducting a comprehensive survey of the school library system in order to provide information about the state of IL in schools. Such an exercise would help to provide viable recommendations to the government authorities on how to improve IL and as a consequence develop information literacy more systematically in schools.

7.5.3 Study of IL knowledge and skills among teaching staff

A study of IL knowledge and skills among teaching staff in higher education learning institutions will facilitate the identification of those areas amongst staff that have weaknesses or strengths. Lack of IL skills among teaching staff is cited by Pejova (2002) as being among the problems that impede IL knowledge and skills among students. He notes:

> *Teaching staff not being fully acquainted themselves with the richness and complexity of information resources and themselves not possessing information literacy knowledge and skills are not in a position to request the same from students.*

> *The result is that the students "successfully" accomplish their studies without absorbing the necessary information literacy skills.*

This study can also help to intensify sensitisation to IL in the higher learning community pertaining to its importance in education both for teaching and learning and consequently stimulate IL activities in higher learning institutions.

7.5.4   Study of IL in the workplace and in the community

It has been stated under section 3.6 that information literacy is a necessary requirement for every individual because it empowers people with life long skills that enable them to fit and work better in the contemporary world of technological advancement and globalisation. Pejova (2002) expresses the importance of IL in diverse contexts by noting that:

> *IL is a modus for maintaining and developing the knowledge acquired at whatever grade of education and means which help people relate to the universe of knowledge. IL defines the quality of education, the quality of research, the quality of work and life in general.*

IL knowledge and skills are thus required not only in academic environments but also in all workplaces and the entire community in general. This is particularly important as observed by Pejova (2002) that the ever-developing information and knowledge management skills increasingly determine the efficiency and competitiveness of information organisations and this makes IL a major strategic issue for both private and public sector organisations.

Pejova (2002) contends that wide spread lack of information literacy in less developed countries is a serious problem, which causes a highly negative economic drawback. In a situation referred to by Pejova (2002) a study of IL knowledge and skills in various work places in Tanzania is important because such a study would not only enable Tanzania as a nation to extend the scope of IL from an academic context to the entire community but it will also help to stimulate and spur recognition of the need for and the importance of IL

nationally. In addition such a study would determine the extent to which people in various sectors are information literate.

7.6   In conclusion

The study succeeded in investigating and documenting the prevailing status and practice of IL for teaching and learning in four Tanzanian universities. The weaknesses and strengths of the IL practices that are in place have been shown. Potential prospects and recommendations for effective implementation of IL both institutionally and nationally have been made.

Worldwide information literacy is gaining a high profile as is essential within education and in other sectors of life. Bruce (2002) observes that:

> *Information literacy has grown, taken shape and strengthened to become recognised as the critical literacy for the twenty-first century. Sometimes interpreted as one of the number of literacies, information literacy is also described as the overarching literacy essential for twenty-first century living. Today, information literacy is inextricably associated with information practices and critical thinking in the information and communication technology environment.*

In the centre of the information explosion the ability to access, retrieve, evaluate and communicate information is a very significant part of the contemporary literacy because these skills form part of the IL outcomes and broaden other skills such as reading, writing and arithmetic. Information literacy fosters economic and social growth because it enables people to make sense of an information rich environment and to participate actively and competently in their society. It is therefore important for people in academic and non-academic situations, to be equipped with IL skills so that they are able to access and use the needed information effectively. This calls for the introduction of comprehensive and systematic IL education across the entire society.

In summary, the study's conclusions are that IL practices in Tanzanian universities are still at a developmental level. IL programmes are mainly undertaken as orientation or as standalone programmes conducted through short seminars and workshops as well as

informally when students visit the library. As the programmes are not integrated into the curriculum, attendance is voluntary. Thus, measures to improve and make IL programmes integrated and recognised university wide are needed. These measures include the involvement of teaching staff in IL activities, a clearly stipulated IL policy, the provision of adequate human and non-human resources, an in-depth awareness among various stakeholders and, above all, a proactive approach by librarians.

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Appendix 1

ACRL information literacy competency standards for higher education standards, performance indicators and outcomes

Standard One

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

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

   Outcomes Include:

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

2. The information literate student identifies a variety of types and formats of potential sources for information.

   Outcomes Include:

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

3. The information literate student considers the costs and benefits of acquiring the needed information.

Outcomes Include:

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

4. The information literate student re-evaluates the nature and extent of the information need.

Outcomes Include:

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

Standard Two
The information literate student accesses needed information effectively and efficiently.
Performance Indicators:

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

Outcomes Include:

a. Identifies appropriate investigative methods (e.g., laboratory experiment, simulation, fieldwork)
b. Investigates benefits and applicability of various investigative methods
c. Investigates the scope, content, and organization of information retrieval systems
d. Selects efficient and effective approaches for accessing the information needed from the investigative method or information retrieval system

2. The information literate student constructs and implements effectively-designed search strategies.

Outcomes Include:

a. Develops a research plan appropriate to the investigative method
b. Identifies keywords, synonyms and related terms for the information needed

   c. Selects controlled vocabulary specific to the discipline or information retrieval source

   d. Constructs a search strategy using appropriate commands for the information retrieval system selected (e.g., Boolean operators, truncation, and proximity for search engines; internal organizers such as indexes for books)

   e. Implements the search strategy in various information retrieval systems using different user interfaces and search engines, with different command languages, protocols, and search parameters

   f. Implements the search using investigative protocols appropriate to the discipline

3. The information literate student retrieves information online or in person using a variety of methods.

Outcomes Include:

   a. Uses various search systems to retrieve information in a variety of formats

   b. Uses various classification schemes and other systems (e.g., call number systems or indexes) to locate information resources within the library or to identify specific sites for physical exploration

   c. Uses specialized online or in person services available at the institution to retrieve information needed (e.g., interlibrary loan/document delivery, professional associations, institutional research offices, community resources, experts and practitioners)

   d. Uses surveys, letters, interviews, and other forms of inquiry to retrieve primary information

4. The information literate student refines the search strategy if necessary.

Outcomes Include:

   a. Assesses the quantity, quality, and relevance of the search results to determine whether alternative information retrieval systems or investigative methods should be utilized

   b. Identifies gaps in the information retrieved and determines if the search strategy should be revised

   c. Repeats the search using the revised strategy as necessary

5. The information literate student extracts, records, and manages the information and its sources.

Outcomes Include:

   a. Selects among various technologies the most appropriate one for the task of extracting the needed information (e.g., copy/paste software functions, photocopier, scanner, audio/visual equipment, or exploratory instruments)

b. Creates a system for organizing the information
c. Differentiates between the types of sources cited and understands the elements and correct syntax of a citation for a wide range of resources
d. Records all pertinent citation information for future reference
e. Uses various technologies to manage the information selected and organized

Standard Three

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

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

   Outcomes Include:

   a. Reads the text and selects main ideas
   b. Restates textual concepts in his/her own words and selects data accurately
   c. Identifies verbatim material that can be then appropriately quoted

2. The information literate student articulates and applies initial criteria for evaluating both the information and its sources.

   Outcomes Include:

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

3. The information literate student synthesizes main ideas to construct new concepts.

   Outcomes Include:

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

4. The information literate student compares new knowledge with prior knowledge to determine the value added, contradictions, or other unique characteristics of the information.

   Outcomes Include:

   a. Determines whether information satisfies the research or other information need
   b. Uses consciously selected criteria to determine whether the information contradicts or verifies information used from other sources
   c. Draws conclusions based upon information gathered
   d. Tests theories with discipline-appropriate techniques (e.g., simulators, experiments)
   e. Determines probable accuracy by questioning the source of the data, the limitations of the information gathering tools or strategies, and the reasonableness of the conclusions
   f. Integrates new information with previous information or knowledge
   g. Selects information that provides evidence for the topic

5. The information literate student determines whether the new knowledge has an impact on the individual's value system and takes steps to reconcile differences.

   Outcomes Include:

   a. Investigates differing viewpoints encountered in the literature
   b. Determines whether to incorporate or reject viewpoints encountered

6. The information literate student validates understanding and interpretation of the information through discourse with other individuals, subject-area experts, and/or practitioners.

   Outcomes Include:

   a. Participates in classroom and other discussions
   b. Participates in class-sponsored electronic communication forums designed to encourage discourse on the topic (e.g., email, bulletin boards, chat rooms)
   c. Seeks expert opinion through a variety of mechanisms (e.g., interviews, email, listservs)

7. The information literate student determines whether the initial query should be revised.

   Outcomes Include:

   a. Determines if original information need has been satisfied or if additional information is needed

b. Reviews search strategy and incorporates additional concepts as necessary

c. Reviews information retrieval sources used and expands to include others as needed

Standard Four
The information literate student, individually or as a member of a group, uses information effectively to accomplish a specific purpose.
Performance Indicators:

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

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

2. The information literate student revises the development process for the product or performance.

   Outcomes Include:

   a. Maintains a journal or log of activities related to the information seeking, evaluating, and communicating process
   b. Reflects on past successes, failures, and alternative strategies

3. The information literate student communicates the product or performance effectively to others.

   Outcomes Include:

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

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

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

    Outcomes Include:

    a. Identifies and discusses issues related to privacy and security in both the print and electronic environments
    b. Identifies and discusses issues related to free vs. fee-based access to information
    c. Identifies and discusses issues related to censorship and freedom of speech
    d. Demonstrates an understanding of intellectual property, copyright, and fair use of copyrighted material

2. The information literate student follows laws, regulations, institutional policies, and etiquette related to the access and use of information resources.

    Outcomes Include:

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

3. The information literate student acknowledges the use of information sources in communicating the product or performance.

Outcomes Include:

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

Appendix 2

CAUL information literacy standards and outcomes

Standard One

The information literate person recognises the need for information and determines the nature and extent of the information needed

Outcomes

1.1 *The information literate person defines and articulates the need for information*
Examples
- 1.1.1 Confers with others, including peers and experts, and participates in face to face and electronic discussions with peers to identify a research topic, or other information need
- 1.1.2 Explores general information sources to increase familiarity with the topic
- 1.1.3 Identifies key concepts and terms by mapping the information need and from that formulates and focuses questions
- 1.1.4 Defines or modifies the information need to achieve a manageable focus
- 1.1.5 Recognises that information can be combined with original thought, experimentation, and/or analysis to produce new information
- 1.1.6 Identifies their existing knowledge framework

1.2 *The information literate person understands the purpose, scope and appropriateness of a variety of information sources*
Examples
- 1.2.1 Understands the formal and informal processes of information production and knows how information is organised and disseminated
- 1.2.2 Recognises that knowledge can be organised into disciplines that influence the way information is produced, organised and accessed within and across disciplines
- 1.2.3 Differentiates between, and values the variety of potential sources of information eg people, agencies, multimedia, database, website, dataset, audiovisual, book
- 1.2.4 Identifies the intended purpose and audience of potential resources eg popular vs scholarly, current vs historical
- 1.2.5 Differentiates between primary and secondary sources, recognising how their use and importance vary with each discipline
- 1.2.6 Realises that information may need to be constructed with raw data from primary sources

1.3 *The information literate person consciously considers the costs and benefits of acquiring the needed information*
Examples
- 1.3.1 Determines the availability of needed information and makes decisions on broadening the information seeking process beyond immediate resources eg using resources at other locations; obtaining images, videos, text, or sound; document delivery
- 1.3.2 Considers the feasibility of learning a new skill(s) to gather needed information and understands its context, possibly beyond a single discipline or knowledge framework

1.3.3   Defines a realistic overall plan and timeline to acquire the needed information

1.4   *The information literate person re-evaluates the nature and extent of the information need*

Examples

1.4.1   Reviews the initial information need to clarify, revise, or refine the question

1.4.2   Uses and can articulate the criteria used to make information decisions and choices

Standard two

The information literate person accesses needed information effectively and efficiently

Outcomes

2.1   *The information literate person selects the most appropriate investigative methods or information access tools for finding the needed information*

Examples

2.1.1   Identifies appropriate investigative methods eg laboratory experiment, simulation, fieldwork

2.1.2   Investigates benefits and applicability of various investigative methods

2.1.3   Investigates the scope, content, and organisation of information access tools

2.1.4   Selects efficient and effective approaches for accessing the information needed for the investigative method or information access tools

2.1.5   Consults with information professionals to help identify information access tools

2.2   *The information literate person constructs and implements effectively designed search strategies*

Examples

2.2.1   Develops a research plan appropriate to the investigative method

2.2.2   Identifies keywords, synonyms and related terms for the information needed

2.2.3   Selects appropriate controlled vocabulary or classification specific to the discipline or information access tools

2.2.4   Constructs a search strategy using appropriate commands for the information access tool selected eg Boolean operators, truncation, and proximity operators for databases/search engines; internal organisers such as indexes for books

2.2.5   Implements the search strategy in various information access tools with appropriate command languages, protocols and search parameters

2.2.6   Implements the search using investigative methodology appropriate to the discipline

2.3   *The information literate person retrieves information using a variety of methods*

Examples

2.3.1   Uses various information access tools to retrieve information in a variety of formats

2.3.2   Uses various classification schemes and other systems eg call number systems or indexes, to locate information resources within a library or to identify specific sites for physical exploration

2.3.3   Uses specialised online or in person services to retrieve information needed eg document delivery, professional associations, institutional research offices, community resources, experts and practitioners

2.3.4   Uses surveys, letters, interviews, and other forms of inquiry to retrieve primary information

Standard three

The information literate person evaluates information and its sources critically and incorporates selected information into their knowledge base and value system
Outcomes

3.1 *The information literate person assesses the utility of the information accessed*
Examples
3.1.1 Assesses the quantity, quality, and relevance of the search results to determine whether alternative information access tools or investigative methods should be utilised
3.1.2 Identifies gaps in the information retrieved and determines if the search strategy should be revised
3.1.3 Repeats the search using the revised strategy as necessary

3.2 *The information literate person summarises the main ideas extracted from the information gathered*
Examples
3.2.1 Reads the text and selects main ideas
3.2.2 Restates textual concepts in own words and selects data accurately
3.2.3 Identifies verbatim material that can then be appropriately quoted

3.3 *The information literate person articulates and applies initial criteria for evaluating both the information and its sources*
Examples
3.3.1 Examines and compares information from various sources to evaluate reliability, validity, accuracy, authority, timeliness, and point of view or bias
3.3.2 Analyses the structure and logic of supporting arguments or methods
3.3.3 Recognises and questions prejudice, deception, or manipulation
3.3.4 Recognises the cultural, physical, or other context within which the information was created and understands the impact of context on interpreting the information
3.3.5 Recognises and understands own biases and cultural context

3.4 *The information literate person validates understanding and interpretation of the information through discourse with other individuals, subject area experts, and/or practitioners*
Examples
3.4.1 Participates in peer group and other discussions
3.4.2 Participates in electronic communication forums designed to encourage discourse on the topic e.g email, bulletin boards, chat rooms
3.4.3 Seeks expert opinion through a variety of mechanisms e.g interviews, email, listservs

3.5 *The information literate person determines whether the initial query should be revised*
Examples
3.5.1 Determines if original information need has been satisfied or if additional information is needed
3.5.2 Reviews search strategy and incorporates additional concepts as necessary
3.5.3 Reviews information access tools used and expands to include others as needed

Standard Four

The information literate person classifies, stores, manipulates and redrafts information collected or generated

Outcomes

4.1 *The information literate person extracts, records, and manages the information and its sources*
Examples
- 4.1.1 Selects the most appropriate technology for extracting the needed information eg copy/paste software functions, photocopier, scanner, audiovisual equipment, or exploratory instruments
- 4.1.2 Creates a system for organising and managing the information eg card files, *Endnote*
- 4.1.3 Differentiates between the types of sources cited and understands the elements and correct citation style for a wide range of resources
- 4.1.4 Records all pertinent citation information for future reference
- 4.1.5 Manipulates digital text, images, and data transferring them from their original locations and formats to a new context

4.2 *The information literate person preserves the integrity of information resources, equipment, systems and facilities*
Examples
- 4.2.1 Respects the access rights of all users and does not damage information resources
- 4.2.2 References correctly the information resources that have been used
- 4.2.3 Takes precautions against spreading computer viruses

4.3 *The information literate person legally obtains, stores, and disseminates text, data, images, or sounds*
Examples
- 4.3.1 Observes the requirements of moral rights and similar legislation
- 4.3.2 Complies with stated wishes of the owner of intellectual property
- 4.3.3 Understands copyright and privacy laws and respects the intellectual property of others
- 4.3.4 Acquires, publishes and disseminates information in ways which do not breach copyright laws or privacy principles.
- 4.3.5 Understands fair dealing in respect of the acquisition and dissemination of educational and research materials

Standard five

The information literate person expands, reframes or creates new knowledge by integrating prior knowledge and new understandings individually or as a member of a group

Outcomes
5.1 *The information literate person applies prior and new information to the planning and creation of a particular product*
Examples

5.1.1 Understands that information and knowledge in any discipline is in part a social construction and is subject to change as a result of ongoing dialogue and research

5.1.2 Organises the content in a manner that supports the purposes and format of the product eg outlines, drafts, storyboards

5.1.3 Articulates knowledge and skills transferred from prior experiences to planning and creating the product

5.1.4 Integrates the prior and new information, including words and ideas, in a manner that supports the purposes of the product

5.2 *The information literate person synthesises main ideas to construct new concepts*

Examples

5.2.1 Recognises interrelationships among concepts and combines them into potentially useful primary statements with supporting evidence

5.2.2 Extends initial synthesis, when possible, at a higher level of abstraction to construct new hypotheses that may require additional information

5.2.3 Utilises information technology applications eg spreadsheets, databases, multimedia, and audiovisual equipment, for studying the interaction of ideas and other phenomena

5.3 *The information literate person compares new understandings with prior knowledge to determine the value added, contradictions, or other unique characteristics of the information*

Examples

5.3.1 Determines whether information satisfies the research or other information need

5.3.2 Uses consciously selected criteria to determine whether the information contradicts or verifies information used from other sources

5.3.3 Draws conclusions based upon information gathered

5.3.4 Tests theories with discipline appropriate techniques eg simulators, experiments

5.3.5 Determines probable accuracy by questioning the source of the data, the limitations of the information gathering tools or strategies, and the reasonableness of the conclusions with previous information or knowledge

5.3.6 Selects information that provides evidence for the topic

5.4 *The information literate person revises the development process for the product*

Examples

5.4.1 Maintains a record of activities related to the information seeking, evaluating, and communicating process

5.4.2 Reflects on past successes, failures and alternative strategies

5.5 *The information literate person communicates the product effectively to others*

Examples

5.5.1 Chooses a communication medium and format that best supports the purposes of the product and the intended audience

5.5.2 Uses a range of appropriate information technology applications in creating the product

5.5.3 Incorporates principles of design and communication appropriate to the environment

5.5.4 Communicates clearly and in a style to support the purposes of the intended audience

Standard six

The information literate person understands cultural, economic, legal, and social issues surrounding the use of information and accesses and uses information ethically, legally and respectfully

Outcomes

6.1 *The information literate person understands cultural, ethical, legal and socio-economic issues surrounding information and information technology*
Examples
   6.1.1   Identifies and can articulate issues related to privacy and security in both the print and electronic environments
   6.1.2   Identifies and can articulate issues related to free visa vs. vie fee based access to information
   6.1.3   Identifies and can discuss issues related to censorship and freedom of speech
   6.1.4   Demonstrates an understanding of intellectual property, copyright and fair use of copyrighted material
   6.1.5   Recognises the 'information divide' as a contributing factor to socio-economic divisions

6.2 *The information literate person follows laws, regulations, institutional policies, and etiquette related to the access and use of information resources*
Examples
   6.2.1   Obtains, stores, and disseminates text, data, images, or sounds in a legal manner
   6.2.2   Complies with institutional policies on access to information resources
   6.2.3   Demonstrates an understanding of what constitutes plagiarism and does not represent work or ideas attributable to others as their own
   6.2.4   Demonstrates an understanding of institutional policies related to ethical research
   6.2.5   Participates in electronic discussions following accepted practices eg Netiquette

6.3 *The information literate person acknowledges the use of information sources in communicating the product*
Examples
   6.3.1   Selects an appropriate citation style and uses it consistently to cite sources used
   6.3.2   Acknowledges sources in accordance with copyright legislation
   6.3.3   Understands and respects indigenous and multicultural perspectives of using information

Standard seven

The information literate person recognises that lifelong learning and participative citizenship requires information literacy

Outcomes

7.1   *The information literate person appreciates that information literacy requires an ongoing involvement with learning and information technologies so that independent lifelong learning is possible*
Examples
   7.1.1   Uses diverse sources of information to inform decisions

7.1.3   Seeks to maintain current awareness in areas of interest and/ or expertise by monitoring information sources

7.1.4   Derives satisfaction and personal fulfilment from locating and using information

7.1.5   Keeps up to date with information sources, information technologies, information access tools and investigative methods

7.1.6   Recognises that the information search process is evolutionary and non linear

7.2   *The information literate person determines whether new information has implications for democratic institutions and the individual's value system and takes steps to reconcile differences*

Examples

7.2.1   Identifies whether there are differing values that underpin new information or whether information has implications for personal values and beliefs

7.2.2   Applies reasoning to determine whether to incorporate or reject viewpoints encountered

7.2.3   Maintains an internally coherent set of values informed by knowledge and experience

Appendix 3

IL competencies of State University of New York System

Competency 1: *To recognize the need for information.*
Indicators:

- Recognizes that accurate and comprehensive information is the basis for intelligent decision making.
- Frames appropriate questions based on information needs.
- Defines a manageable focus and time line.

Competency 2: *To access information from appropriate sources.*
Indicators:

- Understands and can use the variety of information sources available, including: Internet, CD-ROM interfaces, electronic library catalogues, microformats and print materials.

- Identifies a variety of potential sources of information.
- Can select those sources that are appropriate to a given need.
- Develops efficient and effective search strategies.
- Consults experts for assistance/guidance when needed.
- Understands standard systems of Information organization.
- Identifies and retrieves information relevant to the question/need.

Competency 3: *To develop skills in using information technologies.*
Indicators:

- Can access the campus information systems and understands how to access information networks.
- Can access the Internet, and can navigate the information highway to locate information appropriate to the need.
- Uses group communication methods, electronic mail, discussion groups for information gathering, feed back, and interaction.
- Can effectively expand or narrow a search as needed.
- Understands and can use word processing, spreadsheets, databases and computer file management.
- Can manipulate and transfer electronic information.

Competency 4: *To critically analyze and evaluate information.*
Indicators:

- Filters large amounts of information.
- Determines accuracy, relevance, and comprehensiveness of information.
- Assesses the reliability and accuracy of information.
- Distinguishes among facts, points of view, and opinion.
- Thinks critically about the content of information.

- Understands the process of knowledge generation and publication patterns in appropriate disciplines/fields.

Competency 5: *To organize and process information.*
Indicators:
- Synthesizes information from a variety of sources.
- Integrates new information into ones own knowledge base.
- Makes inferences, connections, and draws conclusions.
- Organizes information for practical application.

Competency 6: *To apply information for effective and creative decision making.*
Indicators:
- Applies information in critical thinking and problem solving.
- Creates new information or knowledge through synthesis.
- Produces quality products appropriate to specific needs.

Competency 7: *To generate and effectively communicate information and knowledge.*
Indicators:
- Produces and communicates information in effective and appropriate formats.
- Disseminates information in appropriate modes.
- Evaluates the effectiveness/success of products developed and presented.

Competency 8: *To understand and respect the ethical, legal and socio-political aspects of information and its technologies.*
Indicators:
- Respects the principles of equitable access to information.
- Respects intellectual property rights.
- Applies principles of academic honesty in use of information.
- Acknowledges works of others through accurate citations and references.

Competency 9: *To develop attitudinal objectives that lead to appreciation of lifelong learning.*
Indicators:
- Understands that information searching requires time, diligence, and practice, and that skills are learned over time.
- Increases self-confidence with practice and experience in information seeking.
- Recognizes that the information search process is evolutionary and changes during the course of investigation.
- Knows that careful and attentive scrutiny of information tools and resources is essential to success.
- Appreciates that information literacy requires an ongoing involvement with learning and information technologies so that independent lifelong learning is possible. (SUNY, 1997)

Appendix 4

IL competencies of University of Massachusetts System

These competencies were developed by referring to Stripling and Pitts's Brainstorms and Blueprints: Teaching Library Research as a Thinking Process (1988), which offers a taxonomy comprising six levels:

- Level 1: Fact finding
- Level 2: Asking questions
- Level 3: Organizing information
- Level 4: Evaluating/deliberating
- Level 5: Integrating/concluding
- Level 6: Conceptualizing

Competence 1:   ***Recognize the need for information***
- By articulating the assignment, project or information need
- By stating the purpose of the information need
- By initiating a search strategy
- By relating the information needed to what is already known
- By identifying appropriate and using general reference sources (including People, multimedia, WWW, and print)
- By restating concepts in own words

Competence 2:   ***Formulate questions based on information needs***
- By using different types of questions (e.g. seeking information, analysis, Opinion)
- By developing a central question that is the foundation of a thesis Statement
- By noting key words, concepts, and phrases

Competence 3:   ***Identify potential sources of information***
- By identifying and using types of resources relevant to the research topic (including multimedia, people, WWW, and print, etc.)
- By developing an awareness of the structure of databases
- By understanding the limitation of databases and print resources (dates, Errors, self-imposed, subject matter limits, timeliness, updates)
- By differentiating between primary and secondary sources
- By identifying possible databases to be searched

Competence 4:   ***Develop and use successful search strategies***
- By accessing print and technology based sources of information
- By using electronic resources to locate, retrieve and transfer information
- By knowing when and how to obtain assistance from a reference librarian, Particularly when accessing library resources

- By systematically organizing information
- By understanding the advantages and disadvantages of different database Search techniques (truncation, free text, fixed vocabulary, combined free text, fixed vocabulary, combined free text/fixed vocabulary, Boolean)
- By being able to broaden and narrow searches as necessary
- By recognizing that information is organized in one or a combination of ways (e.g., by date, by author, by geographic location, by type of product, etc.)
- By interpreting information found in reference sources, including electronic sources
- By revising or expanding the thesis statements as necessary
- By using subject headings or cross references to find additional resources
- By crediting sources
- By using electronic resources to locate, retrieve and transfer information
- By following established etiquette and local guidelines for using electronic resources
- By determining available of resources and knowing how to obtain those not available locally
- By knowing how to print, photocopy, download, etc.

Competence 5: *Evaluate information*
- By differentiating between fact and opinion
- By identifying currency, authority (motive, point of view bias, scholarship, intended audience, objectivity, consistency)
- By eliminating irrelevant pieces of information
- By distinguishing between popular and scholarly resources

Competence 6: *Use information*

- By communicating clearly
- By paraphrasing accurately
- By determining the most effective means of presentation (decide purpose, audience process)
- By preparing an accurate bibliography
- By integrating information from a variety of sources (University of Massachusetts, Dartmouth, 2000)

Appendix 5

Information skills benchmarks of South Bank University

Information Skill 1: Understanding the need to use information
Level 0   Understanding of need to use information to undertake everyday tasks
Level 1   Understanding of the dangers of information overload
        Ability to define specific information needs
        Ability to use general reference resources to increase familiarity with topic
Level 2   Recognition that background information helps to focus topic
Level 3   Ability to redefine/modify information sought on basis of material found
        for project
Level M   Ability to redefine/modify information sought from research material
        found for major project.

Information Skill 2: Packaging of information and choosing suitable sources for research.
Level 0   Understanding of purposes and audience of resources: popular, scholarly
        Understanding of need to use both print and electronic resources
Level 1   Understanding of characteristics of information resources: primary,
        Secondary, journal literature, print vs electronic.
        Understanding of publication cycles, and issues of currency
        Understanding the research supply chain
        Understanding of print and electronic holdings of the home library
        Ability to select the most appropriate print and electronic sources for essay
        With some guidance
        Basic understanding of intellectual property
Level 2   Ability to select appropriate subject print and electronic resources for
        essay without guidance
Level 3   Ability to select range of appropriate subject resources for undertaking a
        project

Information Skill 3: Search tools and the need for a search strategy
Level 0   Understanding of everyday search tools
        Understanding the need to use appropriate search tools
Level 1   Understanding of library catalogue as a list of the holding of the institution
        Understanding of the web as complex mix of free and charge able material
        Understanding of limitations of web materials located by search engines
        Understanding of gateways and how they differ from search engines
        Understanding of LISA as the key gateway to premium information
           sources
        Understanding of the makeup of a database
        Ability to transfer a subject into a keyword search
Level 2   Ability to select most appropriate search tool, distinguishing between
           indexes, online databases, collections of online databases, and gateways
        Understanding of use of abstracts and indexes, and full-text electronic

	Resources alongside print resources
	Understanding of other library catalogues as the way to discover holding elsewhere
Level 3	Ability to choose range of electronic databases, printed abstracts to undertake project
	Ability to choose range of web search engines and search gateways to find material for project.
Level M	Ability to choose full range of print and electronic search tools to undertake major project

Information Skill 4: Locating and accessing information

Level 0	Ability to use local library catalogue to search for specific books
	Ability to navigate around web using live links
	Ability to use web addresses to search the web
Level 1	Ability to use keywords to search for material on a topic
	Ability to use a library catalogue to find specific books, journal titles, books on a subject
	Ability to reserve and renew books
	Ability to use web gateways and search engines to locate material for an essay topic
	Ability to use databases and full-text services of LISA to locate material for an essay topic
	Understanding of electronic access anywhere in the University and off-campus
	Ability to use classification to locate all kinds of print materials in the library
	Ability to use help screens and help sheets to search for information
Level 2	Ability to use truncation and Boolean search techniques
	Awareness and use of different levels of searching on databases
	Ability to understand and used controlled vocabulary
	Ability to limit searches by fields
	Ability to display electronic results in various orders and understand all components of citations
	Ability to use variety of web search engines
	Understanding of inter library loan, access to other libraries, e.g. British Library and UK Libraries Plus libraries
Level 3	Ability to construct complex searches and use across a range of Databases, using different user interfaces, redefining terms and Repeating searches as required
	Ability to obtain interlibrary loans and access UK Libraries Plus libraries
Level M	Ability to search using comprehensive range of abstracts databases, Using different user many different user interfaces

Ability to use specialist collections or British Library
Ability to set up e-mail alerting services
Ability to save and re-use searches

Information Skill 5: Comparing and evaluating information

Level 0   Ability to read text, select material and summarize in own words for own use at basic level

Level 1   Awareness of issues of currency, bias and authority
Understanding of issues of accuracy, relevance and comprehensiveness
Understanding of presentation style used and messages this gives
understanding of nature of information freely available on the Internet
Ability to extract material by taking notes from print sources and from electronic by printing or saving to disk
Ability to sift main ideas in information found for constructing a presentation or essay

Level 2   Ability to choose range of materials on topics, taking into account Currency, bias, authority, accuracy, relevance and comprehensiveness
Ability to sift information for application in essays

Level 3   Awareness of peer review process in journals
Ability to read, analyse and evaluate wide range of materials on complex Subjects identifying bias, and other factors, measuring against material already found
Ability to sift information for project

Level M   Critical skills in assessing wide range of materials taking into account Bias and other factors
Ability to sift information for major project

Information Skill 6: Organizing, applying and communicating information sources to others

Level 0   Understanding of the need to keep records of searches and resources found

Level 1   Ability to keep basic records of searches made and resources found
Ability to cite printed and electronic sources used for essay preparation as a book list
Compliance with copyright and plagiarism rules

Level 2   Ability to create bibliography of variety of materials used to write essays

Level 3   Ability to keep systematic records of material found for major project
Ability to compile a comprehensive bibliography of different types of sources: books, journals, websites, video, and use either Harvard Referencing or referencing as specified by the course, and to reference electronic materials
Understanding of copyright issues on the web

Level M   Ability to construct major bibliography and reference range of materials in major project

Information Skill 7: Keeping up to date and contributing to new information
Level 0
Level 1
Level 2   Understanding that existing information can be combined with original
                thought, experiment and analysis to produce new information
Level 3   Ability to create new knowledge in a project through synthesis and
                development of existing information
                Ability to reflect on problems encountered
Level M   Ability to create new knowledge in a major project through synthesis or
                development of existing information
                Use of mailing lists, discussion groups, newsgroups to obtain and
                exchange information

Appendix 6

Questionnaire for Librarians

General instruction for filling in the questionnaire

1. This questionnaire has four sections. Please answer each question according to specific instruction given under each question.
2. Where a written response is required please print clearly and legibly.
3. If the space provided for the written response is not enough please use the extra paper provided and clearly number the response.
4. Please give your answers as honestly and freely as possible.
   Confidentiality will be ensured.

SECTION A
Objective
This section requires you to give your biographical data briefly.

1. Personal information:
1.1 Rank

	Designation	Tick one
1	Professor	
2	Ass. Professor	
3	Senior Librarian	
4	Librarian	
5	Asst. Librarian	
6	Other, please specify	

1.2 Gender

	Gender	Tick one
1	Female	
2	Male	

1.3 Highest academic qualification:

	Qualification	Tick one
1	Diploma	
2	BA/BSC	
3	Masters	
4	Ph.D.	
5	Other	

1.4 Years of working in an academic library

	Years	Tick one
1	1-5	
2	6-10	
3	11-15	
4	16+	

SECTION B
Objective

This section enquires about the practices related to information literacy that are in place in your university/college library.

2   Does the library educate and train library users in information literacy (IL) which aims at the effective use of library and information resources available?

		Tick one
1	Yes	
2	No	

(If no please go to section C)

3.   If the answer is **YES** for question number 2, please mention the method(s) that are being used to teach IL.

....
....
....

4.   Is/are the information literacy programme/s taught as independent programme/s (stand-alone) or as a programme/s embedded within other academic disciplines (integrated)?

		Tick one
1	Stand alone	
2	Integrated	

5.   As per your answers in questions 3 and 4 above what staff are involved in information literacy activities?

	Rank	Tick one
1	Lecturers	
2	Academic librarians	
3	Non academic librarians	
4	Both 1 and 2 above	
5	Both 2 and 3 above	
6	1, 2 and 3 above	

6.   If lecturers are involved in IL activities which of the following are they involved in?

	Rank	Tick one
1	Designing the content of IL programme	
2	Suggesting to librarians aspects of IL to be taught	
3	Teaching IL	
4	Both 1 and 2 above	
5	1, 2 and 3 above	

7. What aspects of IL are covered in the IL Programme? [Please give details]
    (i)...
    (ii)..
    (iii)...
    (iv)...
    (v)..

8. Do you have a system of assessing/evaluating information literacy activities?

		Tick one
1	Yes	
2	No	

(If your answer is NO please go to section C)

9. If you answer to question 8 above is yes, what methods do your use?
    ....
    ....
    ....

10. If your answer for question 8 above is YES at what particular stage of the programme do you conduct assessment/evaluation?

	Stage	Tick one
1	At the beginning of the programme	
2	During the programme	
3	At the end of the programme	
4	Both 1 and 2 above	
5	Both 2 and 3 above	
6	Both 1 and 3 above	
7	1, 2 and 3 above	

11.   What are the specific aspects that you assess/evaluate in terms of IL?

	Aspects	Tick as many as apply
1	Students' prior IL skills	
2	Students' IL skills gained during programme	
3	Teaching methods used in the programme	
4	Other, please specify.	

SECTION C
Objective:

This section seeks to obtain your views and opinions regarding information literacy as an educational focus and how best information literacy can be supported in your university/college

12.   How would you rank the following methods in terms of their perceived effectiveness for imparting IL skills? *(Please tick 1 for your most effective method to 5 for the least effective)*

Method	1	2	3	4	5
1. Formal class teaching as an integrated course					
2. Formal class teaching as a stand alone course					
3. One shot group sessions (teaching a group once)					
4. Using web page tutorials					
5. Other, please specify					

13.   From your experience how do you rate undergraduate students in terms of their ability to use library resources and search skills?

		Tick one
1	Very good	
2	Good	
3	Fair	
4	Poor	
5	Very poor	
6	Don't know	

14.   From the list of IL skills below please tick the three aspects that you consider to be the weakest among students.

	Information literacy skills	Tick three
1	Topic analysis	
2	Formulation of search strategy and establishing key words	
3	Catalogue usage and location of relevant information sources in the library	
4	Searching for information from electronic sources	
5	Searching for information from print (hard copy) sources	
6	Knowledge about using print (hardcopy) sources	
7	Knowledge about using electronic sources	
8	Evaluation of information	
9	Others, please specify	

15.   It is recommended that in order to have effective information literacy programmes for students, information literacy should be taught as part of the mainstream curriculum. What is your opinion?

		Tick one
1	Strongly agree	
2	Agree	
3	Disagree	
4	Strongly disagree	
5	Don't know	

16.   Assume that the university/college management has approved the teaching of information literacy as part of the mainstream curriculum. In your opinion who should be responsible for teaching it?

	Staff	Tick one
1	Lecturers	
2	Academic librarians	
3	Non academic librarians	
4	Both 1and 2 above	
5	Both 2 and 3 above	
6	1, 2 and 3 above	

17.   If information literacy is to be taught as part of the mainstream curriculum, how should it be treated?

	Option	Tick one
1	Compulsory and credit earning course	
2	Compulsory but not credit earning	

| 3 | Optional/elective and credit earning | |
| 4 | Optional/elective and not credit earning | |

18. Please give reasons for your answer for question number 17.

....
....
....
....

19. If information literacy is to be taught as part of the mainstream curriculum should it be taught as an independent course or part of another course?

Option	Tick one
1. Be taught as an independent course	
2. Be part of another course	

20. If your answer is that it should be taught as part of another course mention two courses in which IL would best be incorporated.

	Course option
1	
2	

21. As a librarian do you think that there are problems or barriers that hinder implementation or introduction of effective information literacy programme(s)

		Tick one
1	Yes	
2	No	

22. If **Yes** how would you rank the following as barriers to the effective implementation and introduction or development of information literacy in your institution with **1** being the most significant barrier and **5** being the least significant.

	Reason	1	2	3	4	5
1	Lack of a library IL policy					
2	Lack of adequate time by librarians					
3	Lack of adequate teaching resources					
4	Lack of proactiveness by librarians					
5	Lack of understanding on the importance of information literacy by both lecturers and administrators					
6	Negative attitude held by lecturers and administrators towards librarians and the library in general					
7	Other, please specify					

23.   Please provide detailed comment on the barriers that you rank as most significant

      ....
      ....
      ....
      ....
      ....

24.   Is there anything that you would like to add about information literacy skills in the
      academic context?

      ....
      ....
      ....

Thank you very much for taking your time to fill in this questionnaire.

Questionnaire for Teaching Staff about teaching undergraduate students.

General instructions for filling in this questionnaire.

1. This questionnaire has four sections. Please answer each question according to specific instruction given under each question.
2. Where a written response is required please print clearly and legibly.
3. If the space provided for the written response is not enough please use the reverse side of the paper and clearly number the response.
4. Please give your answers as honestly and freely as possible.
   Confidentiality will be ensured.

SECTION A
Objective:
This section requires you to give your biographical data briefly.

1   Personal information:

1.1   Designation

	Designation	Tick One
1	Full Professor	
2	Associate Professor	
3	Senior Lecturer	
4	Lecturer	
5	Assistant Lecturer	
6	Other, please specify	

1.2   Gender

		Tick one
1	Female	
2	Male	

1.3   Faculty :...
1.4   Department:..
1.5   Area of Specialization:...
1.6   Years of Teaching:

	Years	Tick one
1	1-5	
2	6-10	
3	11-15	
4	16+	

SECTION B
Objective:

This section is intended to elicit views concerning students' competence in the use of various information resources in their studies.

2. Do you know if the library educates and trains library users in information literacy (IL) on the effective use of the library and information resources available?

		Tick one
1	Yes	
2	No	
3	I don't know	

3. Do you consider that knowledge and skills for effective use of the library and other information resources contribute positively towards student's academic performance?

		Tick one
1	Yes	
2	No	

4. Are there any specific aspects of knowledge or skills related to library and information use that you consider inadequate among your students?

		Tick one
1	Yes	
2	No	

    (If No go to question 7)

5. *What specific library and information knowledge and skills do students need?*
    Please tick the three aspects that you consider to be the weakest among students.

	Information literacy skills	Tick three
1	Topic analysis	
2	Formulation of search strategy and establishing key words	
3	Catalogue usage and location of relevant information sources in the library	
4	Searching information from electronic sources	
5	Searching information from print (hard copy) sources	
6	Knowledge about using print (hard copy sources)	
7	Knowledge about using electronic sources	
8	Evaluation of information	
9	Other, please specify	

6. If your answer in question 4 is **YES** can you please mention what these areas of inadequacy are. Please list the five that you consider most problematic.

	Areas of inadequacy
1	
2	
3	
4	
5	

7. From your answer to question 4 by whom, where and by which methods do you think those skills can be effectively imparted?

    ....
    ....
    ....

8. How would do you rate the following aspects of information literacy judging from assignments attempted by your students **(Please tick one option for each aspect)**

		1	2	3	4	5	6
	Information literacy aspect	Very good	Good	Aver age	Poor	Very poor	Do not know
1	Range of source material used eg books and journal literature in print and electronic formats						
2	Use of up to date source material						
3	Critical evaluation of the information they use						
4	Ethical use of information in general eg. awareness of plagiarism						

9. Do you require students to use sources in addition to those that you prescribed?

		Tick one
1	Yes	
2	No	

(If no please go to question 11)

10. In your teaching and giving assignments to your students how do you rate your requirement that your students do the following?

	Requirement	Rating		
		High	Moderate	Low
1	Use information sources (e.g. books, articles that you prescribe for them)			
2	Searching and discovering other information sources apart from yours			
3	Both 1 and 2 above			

11. If you answer to question 9 above was **Yes**, what steps do you take to ensure that your students acquire knowledge and skills about the library and other information resources that are important in the discipline you teach?

	Option	Tick one
1	Taking students to the library and introducing them to the resources	
2	Asking the students to go to the library on their own and consult the librarians	
3	Asking the librarian to introduce and teach them how to use specific resources that you consider important	
4	**Other, please specify**	

12. Can you discern any differences in students from the different academic years or level of study, first years as opposed to second years and so on?

		Tick one
1	Yes	
2	No	

(If no please go to section C)

13. If your answer to question 13 was **Yes** can you please give more details.

....
....
....

14. One definition for information literacy is **"the ability to access, use and evaluate information from different sources to enhance learning, solve problems and generate knowledge"** With this definition in mind how would you rate students generally in terms of being or not being **"information literate"**

	Tick one
Very strong	
Strong	
Moderate	
Weak	
Very weak	
Do not know	

SECTION C
Objective:

This section seeks to obtain your views regarding the need for and importance of information literacy as a means of enhancing student's academic performance and learning in general.

15.   It is recommended that in order to have an effective information literacy programme for students, information literacy should be taught in an integrated way, that is integrated into mainstream courses, so as to enable students to relate information literacy skills acquisition to their academic discipline. What is your opinion?

		Tick one
1	Strongly agree	
2	Agree	
3	Disagree	
4	Strongly disagree	

16.   In question 15 if you **Disagree** or **Strongly disagree** please give the reason (s) for your disagreement.

....

....

17.   Assuming that the university management approves teaching information literacy as part of the mainstream curriculum, in your opinion who should be responsible for **designing** the curriculum?

	Staff	Tick one
1	Lecturers	
2	Librarians	
3	Both librarians and lecturers	

18.   Please give reason(s) for your answer in question 17

....

....

....

19.   Assuming that the university management approves teaching information literacy as part of the mainstream curriculum, in your opinion who should be responsible for **teaching** information literacy?

	Staff	Tick one
1	Lecturers	
2	Librarians	
3	Both librarians and lecturers	

20.   Please give reason(s) for your answer in question 19

....

....

21. Suppose that you are consulted about and requested to be involved in designing and teaching a programme for information literacy what would be your response?

	Response	Tick one
1	Agree to design	
2	Agree to teach	
3	Agree to design and teach	
4	None of the above	

22. Please give reasons for you answer in question 21
....
....

23 If information literacy is to be taught as part of the mainstream curriculum, how should it be treated?

	Option	Tick one
1	Compulsory and credit earning course	
2	Compulsory but not credit earning	
3	Optional/elective and credit earning	
4	Optional/elective and not credit earning	

24. Please give reason/s for your answer for question number 23.
....
....

25. If information literacy is to be taught as part of the mainstream curriculum should it be taught as an independent course or part of another course?

Option	Tick one
1. Be taught as an independent course	
2. Part of another course	

26. If your answer is to teach it as part of another course for each of the following course categories below give one course in which IL could best be incorporated.

	Course category	Course option for IL integration
1	University wide common course	
2	Specific degree programme course	

27. Is there anything that you would like to add about information literacy knowledge and skills in academic context?
....
....
....

Thank you very much for taking your time to fill in this questionnaire.

Appendix 8

Questionnaire for students

General instructions for filling in this questionnaire.

1   This questionnaire has four sections. Please answer each question according to specific instruction given under each question.
2   Where a written response is required please print clearly and legibly.
3   If the space provided for the written response is not enough please use the extra paper provided and clearly number the response.
4   Please give your answers as honestly and freely as possible.
Confidentiality will be ensured.

Section A
Objective

This section requires you to give your biographical data briefly.

1.   **Personal information**
1.1   Programme of study...
1.2   Faculty...
1.3   Year/Semester of study **(tick where appropriate)**

	1	2	3	4	5	6	7	8
Year								
Semester								

1.4   Gender

		Tick one
1	Female	
2	Male	

1.5 University enrolment status

	Status	**Tick one**
1	Direct from school	
2	Mature student	

1.6   What type of school/college did you attend last before joining the University

	Type of school/college	**Tick one**
1	Government school	
2	Private-Religious owned	
3	Private-Non religious owned	

4	Other, please specify	

SECTION B

Objective:

This section explore your background for pre-university /college library and information use.

2. Did the last school/college that you attended before joining the university/college have a library?

		Tick one
1	Yes	
2	No	

(If No please go to Section C)

3. If your answer for question number two is YES please respond to the following statements by ticking **YES, NO** or **DON'T KNOW** against the statement here under:

	Statement	Yes	No	Don't Know
1	The library was an independent building			
2	The library was a single room in a building used also for other activities			
3	The library had a permanent trained librarian			
4	The library was attended to by one of the teachers			
5	The library was attended to by a student			
6	The library had a catalogue			
The library had the following information resources in print and or electronic formats :				
7	Reference works eg encyclopaedias, dictionaries etc			
8	Other subject related literature			
9	Journals			
10	Fiction (e.g. novels and stories)			
11	Newspapers and magazines			
12	Audio visual materials			
In the library books were arranged:				
13	Alphabetically by titles			
14	Alphabetically by subjects or disciplines of study			
15	According to Dewey Decimal Classification system			

16	According to Library of Congress Classification system			
17	Not sure what the arrangement was			

4. How frequently did you use your school/college library?

	Frequency	Tick one
1	Every day	
2	Two to four times a week	
3	Once a week	
4	Once every two weeks	
5	Once a month	
6	Less than once a month	
7	Did not use the library at all	

5. Did you receive any instruction on how to use your school/college library?

		Tick one
1	Yes	
2	No	

(If No please go to Question 7)

6. If the answer for question 5 is **Yes** what form did this instruction take?

	Type of instruction	Tick one
1	Classroom lecture on how to use the library	
2	Instruction using leaflets	
3	Signs and posters placed in the library	
4	Instruction when visiting the library	

7. Do you consider your previous knowledge in using the library in your former school/college was adequate in enabling you to use the university/college library?

		Tick one
1	Yes	
2	No	

8. If your answer to question 7 above was **NO**, please explain why and in what ways this knowledge was insufficient

....
....
....

SECTION C
Objective:

This section intends to determine your awareness of preferences for use and skills in the use of various information resources.

9. Do you use the University/College library?

		Tick one
1	Yes	
2	No	

10. As a library user how do you rate your knowledge and skills in using the following information resources **(Choose 5 for highest rating and 1 for lowest rating)**

	Information searching activities	1	2	3	4	5
1	Using the On Line Public Access Catalogue (OPAC)					
2	Using the card catalogue					
3	Using bibliographic tools (Abstracts, indexes etc.)					
4	Using reference tools (Dictionaries, Directories, Encyclopaedias)					
5	Searching the Internet with various search engines					
6	Searching using CD-ROMs and other academic databases					

11. From the information sources listed below indicate your priority for their use when working on assignments given to you by your lecturers? **(Choose 1 for your first priority 6 for your lowest priority.)**

	Sources	1	2	3	4	5	6
1	Books prescribed by lecturers						
2	Books located through the OPAC/Catalogue						
3	Journal articles located form CD-ROM Databases						
4	Information located from the Internet						
5	Handouts and materials given by lecturers						
6	Past papers and other materials used by past students						

12. Do your lecturers require you to use the library?

		Tick one
1	Yes	
2	No	

13. If your answer to question 12 above was **Yes**, how do you rate your lecturer's emphasis on and requirements for using the library and other information apart from those materials prescribed by them? In other words do the lecturers encourage you to use other materials and information sources or they prefer you using the materials they prescribe to you **(Choose 1 for your first priority 4 for your lowest priority.)**

Extent of emphasis		Tick one
1	Very High	
2	High	
3	Moderate	
4	Low	
5	Very low	

14. Do you think that the availability of information from a wide range of sources such as the Internet, CD-ROMs, On-line Databases and printed sources creates confusion or difficulty for you in comprehending, selecting and using information sources appropriately?

		Tick one
1	Yes	
2	No	

15 If your answer to question 14 is **Yes**, please explain

....
....
....

16. How do you rate the usefulness of the Internet in general in meeting your academic information needs?

	Rating	Tick one
1	Very useful	
2	Useful	
3	Not useful	

17. Mention the three Internet search engines that you frequently use. Please arrange them starting with the one you use most.

	Search engines
1	
2	
3	

18. How do you determine the credibility of the information sources that you get when searching for information from the Internet, that is what criteria do you consider important in deciding on the credibility of that information?

	Criteria for Internet information credibility
1	
2	
3	
4	

19. Do you think there is a need for students to be given special training in electronic resources in order to acquire skills for the following Please tick as many as apply.

	Resource	Yes	No	Uncertain
1	Online academic databases			
2	Internet			

20. Which of the following would you like help for and training in, if training was available? **(Choose 1 for first choice and five for last)**

	Help and Training aspect	1	2	3	4	5
1	Topic analysis					
2	Formulation of search strategy and establishing key words					
3	Searching for information from electronic sources					
4	Searching for information from print (hard copy) sources					
5	Knowledge about using print (hardcopy) sources					
6	Knowledge about using electronic sources					
7	Evaluation of information					
8	Other, please specify					

21. Please indicate here below by ticking how frequently have you performed the following information seeking activities in the past month

		1	2	3	4	5	6	7
	Information seeking activities	Every day	Two to four times per week	Once a week	Once every two weeks	Once a month	Less then once a month	Did not perform
1	Using reference material in the library							
2	Using the catalogue in the library to locate relevant material identified							
3	Borrowing a book from the library's general collection for personal academic study							
4	Using the short loan/special reserve/ East Africana collection							
5	Borrowing a book from the library for recreational reading							
6	Reserving a book that was out on loan							
7	Using a bibliography to find required information							
8	Using indexes or abstracts to find required information							
9	Searching the Internet for required academic information							
10	Downloading a journal article from online journals							
11	Using CD-ROM in the library to locate required information							
12	Searching the Internet for recreational purposes e.g. Music, sports, fashion and design, celebrities etc.							
13	Reading newspapers or magazines for local political, social, and economic							

	information						
14	Reading news papers or magazine for international political, social and economic information						
15	Reading newspapers or magazine for local sports and leisure news						
16	Reading news papers or magazine for international sports and leisure news						
17	Using e-mail for sending or requesting educational information						
18	Using e-mail to communicate with friend or relative						
19	Asking a librarian for help to find information						

22. For each item of computer software listed below please indicate your competence in using them:

		1	2	3	4
No	Computer software	Competent and confident	Have some idea but not competent	Unable to use but would like to learn	Unable to use but don't need it.
1	Computer operating system (eg. Windows)				
2	A word processing package (eg. Ms-Word or Word Perfect)				
3	A database package (eg. Access or D/Base)				
4	A graphics programme (eg. Publisher				
5	A package for mathematical or statistical analysis (eg. SPSS or SAS)				
6	Spreadsheet (eg. Excel)				
7	Multimedia package on CD-ROM (eg. Encarta)				
8	Other, please list and indicate competence				
	(i)				
	(ii)				
	(iii)				

23. In terms of the ethics of information use as an information user to what extent do you agree or disagree with the following statements?

	Statements	Strongly agree	Agree	Neither Agree or disagree	Disagree	Strongly disagree
1	Because of book shortages I can photocopy the whole book.					
2	It is not important to purchase computer soft ware if I can get it from a friend who has got it.					
3	When writing an academic paper it is not very important to acknowledge other people's work.					
4	It is important to follow copyright regulations in order to safe-guard other people's intellectual efforts					

SECTION D
Objective:

This section seeks your views regarding information literacy and how best information literacy can be supported in your university/college

24. As a library user do you know whether your university/college library offers training in the use of library resources?

		Tick one
1	Yes	
2	No	

(If No please go to question 26)

25. If **Yes** do you consider this training to be effective? Please give reasons for your answer..

....
....
....

26. It is recommended that in order to have an effective information literacy programme for students, information literacy should be taught as part of the mainstream curriculum (teaching IL as a prescribed subject/course similar to other subjects that are in the

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curriculum). What is your opinion?

		Tick one
1	Strongly agree	
2	Agree	
3	Neither agree nor disagree	
4	Disagree	
5	Strongly disagree	

27.	If your answer for question number 26 was either 3, 4, or 5 which of the following reasons apply to your answer?

	Reason	Tick as many as apply
1	Information literacy is not important	
2	Information literacy is not an academic subject	
3	The time table already has too many subjects	
4	Other reasons, please specify. (i) (ii) (iii) (iv)	

28.	Assume that the university/college management has approved the teaching of information literacy as part of the mainstream curriculum, in your opinion who should be responsible for teaching it?

	Rank	Tick one
1	Lecturers	
2	Academic librarians	
3	Non academic librarians	
4	Both 1and 2 above	
5	Both 2 and 3 above	
6	1, 2 and 3 above	

29.	If information literacy is to be taught as part of the mainstream curriculum, how should it be treated?

	Option	Tick one
1	Compulsory and credit earning course	
2	Compulsory but not credit earning	
3	Optional/elective and credit earning	
4	Optional/elective and not credit earning	

30.	Please give reasons for your answer for question number 29.
....
....
....

31.	If information literacy is to be taught as part of the mainstream curriculum should it be

taught as an independent course or part of another course?

Option	Tick one
1. Be taught as an independent course	
2. Part of another course	

32. If your answer is to teach it as part of another course for each of the following course categories below give one course in which IL could best be incorporated.

	Course category	Course option for IL integration
1	University wide common course	
2	Specific degree programme course	

33. One definition for information literacy is **"the ability to access, use and evaluate information from different sources to enhance learning, solve problem and generate knowledge". Using** this definition how would you rate your self in terms of being or not being **"information literate"**

	Rating	Tick one
1	I am highly information literate	
2	I am moderately information literate	
3	I am not information literate	

34. Is there any thing that you would like to add about information literacy skills in academic context?

....
....
....

Thank you very much for taking your time to fill in this questionnaire.

Appendix 9

Observation schedule

1. **Library collection**
   - Collection organization in general
   - Availability of a variety of print reference resources
     - indexes
     - abstracts
     - dictionaries
     - encyclopedias

2. **Electronic facilities**
   - Internet
   - Number of PCs
   - OPAC
   - CD-ROMs
   - Other facilities

3. **Signage**
   Presence of:
   - Posters
   - Guides
   - Leaflets
   - Time tables for different activities

Appendix-10

Interview schedule for Library Directors/Heads

These interview questions are based on the findings gathered from responses given by teaching staff, librarians and students from a questionnaires survey administered during the first phase of my data collection of my PhD study that was conducted between January and February 2005.

One of the definitions defines Information literacy as *"the ability to access, use and evaluate information from different sources to enhance learning, solve problem and generate knowledge"*.

1. Lecture method was cited by librarians as one of the methods used for teaching information literacy. In what form and scope is this method being applied in your library?

2. Findings of the study have revealed that the library do offer training in the use of library and information recourses. However, the study has found that 328 (49%) out of 664 students indicated that they were not aware about the training being provided. In your views what could be the reason for this "unawareness" and how can it be improved?

3. For the students who indicated to be aware about the training that is being offered by the library, 148 (47%) said the training is effective while 164(53%) said the training is not effective. Reasons cited for the training not being effective were:

    (i)   Inadequate time spent
    (ii) Lack of comprehensiveness
    (iii) Lack of a system
    (iv) Lack of practice
    (v)   Participation of unqualified/unconfident staff

    What are your comments for those shortcomings and what do you think should be done to create improvement?

4. Absence of an information literacy policy and lack of understanding on the importance of information literacy among lecturers and university administrators have been cited by librarians as their first two most significant barriers that affect the development of information. To what extent is those two "barriers" affect IL in your library?

5. Some literature on information literacy indicates and proposes that in order to have a successful information literacy programme partnership and cooperation between librarians and teaching staff is crucial. However findings from the study have shown that only 2 (8.7%) librarians indicated that teaching staff are involved in IL activities. The study revealed further that 18 (72%) of the librarians preferred IL being taught by

librarians as opposed to 317 (47.7) students and 124 (48.1) who preferred IL being taught by both librarians and teaching staff. What is your comment on the inclination indicated by librarians towards teaching IL?

6. The study findings indicate that the majority of the students 570 (89.7%) gave a "Strongly agree" and "Agree" in support of information literacy being mainstreamed in the curriculum. Like wise 17 (68%) and 130 (50.4%) were in favour of mainstreaming IL into the curriculum. In your views in what way is the library ready or not ready to take the responsibility of teaching IL as part of the mainstream curriculum?

7. In order to mainstream information literacy the study has established the following,

    a. The majority of both students and teaching staff respondents were of the view that information literacy be taught as compulsory and credit earning course while others preferred information literacy being taught as compulsory but not credit earning course

    b. The majority of students, teaching staff and librarians preferred teaching information literacy as an independent course as opposed to teaching it as part of another course. What are your comments and views on those two aspects?

Thank you very much for granting me your time to conduct this interview.

Appendix 11

Interview schedule for Deputy Vice Chancellors, for Academics and for Faculty Deans

These interview questions are based on the findings collected from responses given by teaching staff, librarians and students from a questionnaire survey conducted during my first phase of my data collection for my PhD study that was conducted in January 2005.

One of the definitions defines Information literacy as *"the ability to access, use and evaluate information from different sources to enhance learning, solve problem and generate knowledge"*.

1. The study has revealed that out of 664 student respondents 495 (74.5) indicated that their former schools did not have libraries, for 169 (25.5%) respondents whose school had libraries, those libraries had no trained librarians, the library were attended by students/teachers and were under resourced. As a result of those observations 65% of the respondents indicated that they joined the university with no adequate skills to use the university library facilities and they continue lacking effective skills. **What do you think should be done in order to equip university students with the required skills for effective information use?**

2. Some literature criticises teaching methods used by lecturers in developing countries' universities for being traditional in the sense that they rely heavily on lectures and their materials thus suppressing students' independent learning and enquiry mind. This has been confirmed in the study where by 419 (66.6%) students and 305 (51.1%) indicated that they depended on books prescribed by their lecturers and handouts and other materials provided by their lecturers respectively.
   What are your comments and views on this issue and how can that situation be improved?

3. Librarians who are seen to be the pioneers of information literacy in academic institutions including librarians in Tanzanian universities claim and argue that their efforts to promote information literacy specifically mainstreaming it into the curriculum are hindered by both lecturers and university administrators' lack of understanding and appreciation of the importance of information literacy for students' academic performance and for their life-long learning skills.
   What is your comment on that argument?

4. In understanding the problems encountered by students in effective use of library and other information resources especially taking into consideration the technological developments in information storage and retrieval systems, many institutions around the world have recognised the importance of information literacy and the general trend is to mainstream information literacy in the curriculum. It is also recommended that both lecturers and librarians should form partnerships to teach information literacy.

Do you agree that it is high time that Tanzanian universities should also follow this system?

5.   The study has established that the majority of the students and lecturers 570 (89.7%) and 231(89.5%) respectively gave a "Strongly agree" and "Agree" response in support of information literacy being mainstreamed in the curriculum. In order to mainstream information literacy the study had established the following :

   a.   The majority of both students and teaching staff respondents were of the view that information literacy be taught as compulsory and credit earning course while others preferred information literacy being taught as compulsory but not credit earning course

   b.   The majority of students, teaching staff and librarians preferred teaching information literacy as an independent course as opposed to teaching it as part of another course. **What are your comments and view on those two aspects as indicated by respondents?**

6.   Suppose a detailed proposal to mainstream IL in the university curriculum is channelled through you in your capacity as an executive responsible for academic issues in the university/faculty will you support it or not?

Thank you very much for granting me your time for this interview.

Appendix 13

Letter of introduction from the Information Studies Director

UNIVERSITY OF
KWAZULU-NATAL
Information Studies Programme
School of Human and Social
Studies
University of KwaZulu-Natal
Private Bag X01
Scottsville 3209
South Africa Tel: +27 (0) 33
2605007 Fax

22 October 2004

TO WHOM IT MAY CONCERN

REQUEST FOR CO-OPERATION AND ASSISTANCE WITH DOCTORAL RESEARCH PROJECT

Mr Mugyabuso Lwehabura is a doctoral student on our Programme. He is researching the topic

The status and practice of information literacy for teaching and learning in four selected Tanzanian universities.

We believe that this project has great potential benefit for your country and the region as a whole in terms of helping to foster information literacy. Mr Lwehabura will return to his position at Sokoine University of Agriculture, Tanzania after the completion of his studies to assist in the implementation of the recommendations of his study.

Yours faithfully

Christine Stilwell

Christine Stilwell
Professor and Programme Director

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Appendix 14

Introductory letter by the researcher

Mugyabuso J. F. Lwehabura
Sokoine University of Agriculture
P.O. Box 3036
Morogoro-Tanzania.

E-Mail: Julwe@yahoo.com
Phone: 023 2604639
Cell Phone:0744- 015328

Introductory letter from the researcher

Dear Respondent,
As the letter of introduction indicates, I am a Ph.D. student at the University of KwaZulu-Natal in South Africa. As part of my PhD. degree I am conducting an investigative study to determine the status and practice of Information Literacy for teaching and learning in four Tanzanian Universities. In view of the above, librarians, lecturers and students in four Tanzanian universities namely SUA, UDSM, SAUT and Iringa-Tumaini University College are involved in this study.

Reasons for the study:
World wide the literature indicates that the majority of students have little or no experience in using information resources available in libraries and other information centres for effective access and retrieval and use. In developing countries in particular, most of the students join universities and colleges and other learning institutions from education backgrounds that do not have libraries. This problem is escalated by information technology facilities at university level that students do have experience with.

It is therefore recommended that students in universities and other learning institutions should be equipped with information literacy skills so that the can become effective information users. Through information literacy they are expected to comprehend their studies better and also acquire life-long learning skills for their future.

The survey is therefore intended to study the status and current practices of information literacy in the four universities and to collect views from librarians, lecturers and students as to how best this important educational aspect can be effectively practiced in our universities. You are therefore kindly requested to fill in this questionnaire in order to enable me obtain relevant information for my study. Please be as frank and free as possible in your answers in order that you assist me to come up with useful conclusions that would also lead to useful recommendations. Confidentiality of the information that you provide will be respected.

In case you have any other information that feel would be useful to this study will be highly appreciated if accompanied with this questionnaire. For further clarification or discussion you can contact me using the contacts indicated above.
Yours Sincerely,

Mugyabuso J. F. Lwehabura
PhD. Student

Appendix 15

Letter of introduction from The Vice Chancellor-SUA to Mzumbe University

SOKOINE UNIVERSITY OF AGRICULTURE
OFFICE OF THE VICE CHANCELLOR
P.O. Box 3000 MOROGORO, TANZANIA

Tel: 023-2604523/2603511-4; Fax:023-260465 1; TELEX NO. 55308 UNIVMOG; MOROGORO

Our Ref: SUA/ADM/R.1/8   Your Ref........................Date: 24th December 2004

The Vice Chancellor
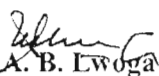Mzumbe University
P. O. Box 1
MZUMBE

RE: RESEARCH BY STAFF OR STUDENTS FROM SOKOINE UNIVERSITY OF AGRICULTURE

The main purpose of this letter is to introduce to you **Mr. Mugyabuso J. F. Lwehabura** who is a staff of Sokoine University of Agriculture and a PhD student at University of KwaZulu Natal South Africa. The individual mentioned above is planning to undertake research activities in your institution. With reference to Government Circular No. MPEC/IO/1 of 7 July, 1980 and Article 8 of Act No 6 of 1984 which established Sokoine University of Agriculture, the Vice Chancellor is authorized to issue permit(s) for undertaking research in the country to University staff, student(s) and research associates(s) on behalf of the Government and Commission for Science and Technology

I therefore request that the expert mentioned above be given the necessary assistance so that he can accomplish his research undertakings. Accommodation, food and transport costs will be paid by himself. The main assistance he need(s) is permission to meet member of the academic staff, librarians and students so that he can administer his questionnaires in order to pre-test them before conducting his research.

The main objective(s) of the research is: **to investigate the status and practices of Information Literacy for teaching and learning in fourTanzanian universities**. The areas selected for conducting research are: Sokoine University of Agriculture; University of Dar-Es-Salaam; St. Augustine University of Tanzania and Iringa-Tumaini University College.

If there are any restricted areas, it is upon you to restrict this researcher from visiting them. The expected date of commencement of his research is 15th January 2005. If there any queries, please contact the Vice Chancellor, Sokoine University of Agriculture, P.O. Box 3000, Chuo Kikuu, Morogoro, Tanzania.

Prof. A. B. Lwoga
VICE CHANCELLOR

cc: Mr. Mugyabuso J. F. Lwehabura
    SUA Morogoro

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Appendix 16

Letter of introduction from The Vice Chancellor-SUA to University of Dar-Es-Salaam

SOKOINE UNIVERSITY OF AGRICULTURE
OFFICE OF THE VICE CHANCELLOR
P.O. Box 3000 MOROGORO, TANZANIA

Tel: 023-2604523/2603511-4; Fax:023-260465 1; TELEX NO. 55308 UNIVMOG; MOROGORO

Our Ref: SUA/ADM/R.1/8   **Your Ref**......................**Date**: 24th December 2004

The Vice Chancellor
University of Dar-Es-Salaam
P. O. Box 35091
DAR-ES-SALAAM

RE: RESEARCH BY STAFF OR STUDENTS FROM SOKOINE UNIVERSITY OF AGRICULTURE

The main purpose of this letter is to introduce to you **Mr. Mugyabuso J. F. Lwehabura** who is a staff of Sokoine University of Agriculture and a PhD student at University of KwaZulu Natal-South Africa. The individual mentioned above is planning to undertake research activities in your institution. With reference to Government Circular No. MPEC/IO/1 of 7 July, 1980 and Article 8 of Act No 6 of 1984 which established Sokoine University of Agriculture, the Vice Chancellor is authorized to issue permit(s) for undertaking research in the country to University staff, student(s) and research associates(s) on behalf of the Government and Commission for Science and Technology

I therefore request that the expert mentioned above be given the necessary assistance so that he can accomplish his research undertakings. Accommodation, food and transport costs will be paid by himself. The main assistance he need(s) is permission to meet member of the academic staff, librarians and students so that he can administer his questionnaires as part of his research.

The main objective(s) of the research is: **to investigate the status and practices of Information Literacy for teaching and learning in fourTanzanian universities**. The areas selected for conducting research are: Sokoine University of Agriculture; University of Dar-Es-Salaam; St. Augustine University of Tanzania and Iringa-Tumaini University College.

If there are any restricted areas, it is upon you to restrict this researcher from visiting them. The expected date of commencement of his research is 15th January 2005. If there any queries, please contact the Vice Chancellor, Sokoine University of Agriculture, P.O. Box 3000, Chuo Kikuu, Morogoro, Tanzania.

Prof. A. B. Lwoga
VICE CHANCELLOR

cc: Mr. Mugyabuso J. F. Lwehabura
    SUA-Morogoro

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Appendix 17

Letter of introduction from The Vice Chancellor-SUA to Iringa-Tumaini University College

SOKOINE UNIVERSITY OF AGRICULTURE
OFFICE OF THE VICE CHANCELLOR
P.O. Box 3000 MOROGORO, TANZANIA

Tel: 023-2604523/2603511-4; Fax:023-260465 1; TELEX NO. 55308 UNIVMOG; MOROGORO

Our Ref: SUA/ADM/R.1/8   Your Ref........................Date: 24th December 2004

The Vice Chancellor
Iringa-Tumaini University College
P. O. Box 200
IRINGA

RE: RESEARCH BY STAFF OR STUDENTS FROM SOKOINE UNIVERSITY OF AGRICULTURE

The main purpose of this letter is to introduce to you **Mr. Mugyabuso J. F. Lwehabura** who is a staff of Sokoine University of Agriculture and a PhD student at University of KwaZulu Natal-South Africa. The individual mentioned above is planning to undertake research activities in your institution. With reference to Government Circular No. MPEC/IO/1 of 7 July, 1980 and Article 8 of Act No 6 of 1984 which established Sokoine University of Agriculture, the Vice Chancellor is authorized to issue permit(s) for undertaking research in the country to University staff, student(s) and research associates(s) on behalf of the Government and Commission for Science and Technology

I therefore request that the expert mentioned above be given the necessary assistance so that he can accomplish his research undertakings. Accommodation, food and transport costs will be paid by himself. The main assistance he need(s) is permission to meet member of the academic staff, librarians and students so that he can administer his questionnaires as part of his research.

The main objective(s) of the research is: **to investigate the status and practices of Information Literacy for teaching and learning in four Tanzanian universities.** The areas selected for conducting research are: Sokoine University of Agriculture; University of Dar-Es-Salaam; St. Augustine University of Tanzania and Iringa-Tumaini University College.

If there are any restricted areas, it is upon you to restrict this researcher from visiting them. The expected date of commencement of his research is 15th January 205. If there any queries, please contact the Vice Chancellor, Sokoine University of Agriculture, P.O. Box 3000, Chuo Kikuu, Morogoro, Tanzania.

Prof. A. B. Lwoga
VICE CHANCELLOR

cc: Mr. Mugyabuso J. F. Lwehabura
    SUA, Morogoro

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Appendix 18

Letter of introduction from The Vice Chancellor-SUA to St. Augustine University of Tanzania (SAUT)

SOKOINE UNIVERSITY OF AGRICULTURE
OFFICE OF THE VICE CHANCELLOR
P.O. Box 3000 MOROGORO, TANZANIA

Tel: 023-2604523/2603511-4; Fax:023-2604651; TELEX NO. 55308 UNIVMOG; MOROGORO

Our Ref: SUA/ADM/R.1/8   **Your Ref**.......................**Date:** 24th December 2004

The Vice Chancellor
St. Augustine University of Tanzania (SAUT)
P. O. Box 307
MWANZA

RE: RESEARCH BY STAFF OR STUDENTS FROM SOKOINE UNIVERSITY OF AGRICULTURE

The main purpose of this letter is to introduce to you **Mr. Mugyabuso J. F. Lwehabura** who is a staff of Sokoine University of Agriculture and a PhD student at University of KwaZulu Natal-South Africa. The individual mentioned above is planning to undertake research activities in your institution. With reference to Government Circular No. MPEC/IO/1 of 7 July, 1980 and Article 8 of Act No 6 of 1984 which established Sokoine University of Agriculture, the Vice Chancellor is authorized to issue permit(s) for undertaking research in the country to University staff, student(s) and research associates(s) on behalf of the Government and Commission for Science and Technology

I therefore request that the expert mentioned above be given the necessary assistance so that he can accomplish his research undertakings. Accommodation, food and transport costs will be paid by himself. The main assistance he need(s) is permission to meet member of the academic staff, librarians and students so that he can administer his questionnaires as part of his research.

The main objective(s) of the research is: **to investigate the status and practices of Information Literacy for teaching and learning in fourTanzanian universities**. The areas selected for conducting research are: Sokoine University of Agriculture; University of Dar-Es-Salaam; St. Augustine University of Tanzania and Iringa-Tumaini University College.

If there are any restricted areas, it is upon you to restrict this researcher from visiting them. The expected date of commencement of his research is 15th January 205. If there any queries, please contact the Vice Chancellor, Sokoine University of Agriculture, P.O. Box 3000, Chuo Kikuu, Morogoro, Tanzania.

Prof. A. B. Lwoga
VICE CHANCELLOR

cc: Mr. Mugyabuso J. F. Lwehabura
SUA-Morogoro

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