

**ASSESSING INFORMATION LITERACY SKILLS OF UNDERGRADUATE
STUDENTS AT HUYE CAMPUS LIBRARY, UNIVERSITY OF RWANDA,
RWANDA**

BY

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**A Thesis Submitted to the School of Information Sciences in Partial Fulfilment of
the Requirements for the Award of the Degree of Master of Science in Library and
Information Studies, Department of Library, Records Management and
Information Studies**

MOI UNIVERSITY

ELDORET

2016

DECLARATION

DECLARATION BY THE CANDIDATE

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DEDICATION

This thesis is dedicated to my beloved husband Mutabaruka Jean, my children Izabiriza-Tumurere Joselyne, Ingabire-Hoza Emelyne, Izesha-Jabo Epiphane; my daughter in law Kankundiye Jeannette, and my grandchild Iriza-Keza E.Kellia for their love, encouragement, understanding and patience during my long absence from home. Also I dedicate this thesis to my parents for introducing me to the world of learning.

ABSTRACT

In the current information society, information literacy (IL) is increasingly being regarded as an essential lifelong learning skill. To university students, it enables them to identify, locate, select, evaluate, use and communicate information thus become independent learners. However the state of these skills among Huye Campus students has never been investigated to determine their competence level that would permit them to maximize the use of the information resources. Consequently, this study aimed at investigating the state of information literacy skills among undergraduate students of Huye Campus, University of Rwanda with the view of proposing strategies to improve the information literacy skills offered to the students. The objectives were to: establish the current information literacy competencies of undergraduate students of Huye Campus, appraise the IL activities at Huye Campus for undergraduate, identify the skills that library staff possess in delivery of IL activities, examine the existing infrastructure that supports the delivery of information literacy skills at Huye Campus, establish the challenges experienced by Huye Campus in executing IL activities, suggest strategies for enforcing and improving information literacy activities at Huye Campus. The Association of College Research Library (ACRL) model complimented with the Seven Faces of Information Literacy was used to inform the study. A survey within a case study research design was adopted. A sample of 377 students, 19 key informants was respectively drawn from a population of 10,182 students and 405 staff. Data was collected using questionnaires for students and face to face interviews for key informants. All data was quantified and analyzed descriptively. The findings revealed that the majority of the students were inadequate in IL competencies except in two competencies where they were fairly adequate; IL activities were below standard; there were no integrated Information Literacy course in the curriculum and not able use information technology in various information literacy activities. The study further found that IL activities were not uniformly offered across all schools; competency levels of librarians were inadequate; ICT facilities and other IL infrastructure were not fully utilized for effective support of IL activities and there were no policies that govern directly the delivery of IL activities. In its conclusion, the study notes that the information literacy skills of undergraduate students at Huye Campus is low and that Huye campus has the potential to grow from its current average status of IL performance. The study recommends that concerted efforts should be exerted to increase the competency level of IL skills among library users by creating IL programmes, training staff, and increasing ICT infrastructure. Further, an information literacy policy should be developed and amalgamated into its wide academic mandates in the form of strategic plans, curriculum development, academic assessment measures and staff training. The library should engage in aggressive advocacy program in order to win both campus-wide and nation-wide support in IL.

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LIST OF ACRONYMS AND ABBREVIATIONS

ACRL: Association of College and Research Libraries

ALA: American Library Association

APA: American Psychological Association

CASS: College of Arts and Social Sciences

CASS: College of Arts and Social Sciences

CAVM: College of Agriculture, Animal Sciences and Veterinary Medicine

CBE: College of Business and Economics

CD-ROM: Compact Disc Read-Only Memory

CE: College of Education

CMHS: College of Medicine and Health Sciences

CST: College of Science and Technology

DVC: Deputy Vice- Chancellor

DVD: Digital Versatile/Video Disc

ICT: Information and Communication Technology

IEA: Evaluation of Educational Achievement

IIA: Information of Industry Association

IL: Information Literacy

ISTE: International Society for Technology in Education

IT: Information Technology

LDAP: Lightweight Directory Access Protocol

LAN: Local Area Network

NCLIS: National Commission on Libraries and Information Sciences

NETS: National Education Technology Standards

NUR: National University of Rwanda

OPAC: Online Public Access Catalogue

R_x: Respondent

SCONUL: Society of College, National and University Libraries

Student_x: One of students

UK: United Kingdom

UNESCO: United Nations Educational, Scientific and Cultural Organization

UR: University of Rwanda

ACKNOWLEDGEMENT

The writing and completion of this work would not have been possible without the assistance of some special individuals. I acknowledge with gratitude to the Government of Rwanda, the University of Rwanda through SIDA project for the financial support and study leave to undertake my course.

Mainly I express my sincere thanks to all IS/Moi University Lecturers, Students who gave me in all manner of moral and technical support, without which this work couldn't have been accomplished

My sincerest thanks go to my supervisors Ms. Emily Ng'eno and Dr. Damaris Odero for their invaluable guidance, support and encouragement. Without their advices, comments and recommendations the current achievement would not be noticeable. I also need to express my gratitude to Mr. Amoth Duncan for his valuable time, advices and encouragement.

My sincere gratitude goes to the students and staff of Huye Campus for having collaborated with me in providing the needed information in this study.

I wish to convey wholeheartedly my gratitude to my family members, especially my husband Dr Jean Mutabaruka for being my rock when things seemed to fall apart, my children Joselyne, Emelyne, Epiphane, my daughter in law Jeannette, and my granddaughter Keilla , for their love, support and for being always and tirelessly at my side throughout this study period.

I am also very grateful to my parents, brothers, friends and relatives for your constant encouragement, your sincere friendship, your moral support and advices during my education.

CHAPTER ONE

INTRODUCTION AND BACKGROUND INFORMATION

1.0 Introduction

Although the concept of Information Literacy (IL) has been defined and described variably by many authors, there is an equally high degree of overlap in the underlying meaning. Bawden (2001) for example defines it as the ability to search for, select, critically evaluate and use information for solving problems in various contexts. The same idea had been supported by the Association of College and Research Libraries (ACRL) (2000), who regard IL as a set of abilities requiring individuals to recognize when information is needed and how to locate, evaluate, and use the needed information effectively. This perspective goes beyond of the tendency to confine Information Literacy (IL) to a narrow library skills commonly misconstrued. In fact, information literacy can be seen more positively as a response to the cultural, social and economic developments associated with the information society. Increasing dependence on information makes IL very important in the profile of a lifelong learner. Lynch (1998), extends the meaning of IL to include with content and communication: this encompasses authoring, information finding and organization, the research process, and information analysis, assessment and evaluation of a wide range of information sources such as text, images, video, computer simulations, and multi-media interactive works. Lynch specifies that content can also serve many purposes: news, art, entertainment, education, research and scholarship, advertising, politics, commerce, and documents and records that structure activities of everyday business and personal life. Thus, Information literacy

goes far beyond the ability to read, write, and critically analyze various forms of primarily textual literary works or personal and business documents. California State University (2000) adequately sums it up that an information literate individual is able to: determine the extent of information needed, access the needed information effectively and efficiently, evaluate information and its sources critically, incorporate selected information into one's knowledge base, use information effectively to accomplish a specific purpose and understand the economic, legal, and social issues surrounding the use of information, and access and use information ethically and legally.

The increasing use of IL in different life areas implies the training of students to appropriate IL skills. According to Butuk (2011), those without IL skills are not usually able to survive the pressures of life, especially in academic circles where research is crucial for success. Thus, it is necessary for a university library whose primary function is to support the teaching and research to the university community to introduce in their programs a course on information literacy. This would serve to develop theoretical knowledge and practical skills concerning the construction, processing and communication of information. As such, IL skills should not only aim at fostering students' positive attitude towards university library resources, but should also aim at developing them to become good readers and searchers.

According to Ranaweera (2008) information literacy skills empower people with the critical skills which will help them to become independent lifelong learners. These skills enable people to apply their knowledge from the familiar environment to the unfamiliar.

Similar view is shared by the American Library Association Presidential Committee (1989) in their statement that information literate people are those who have learned how to learn.

1.1 Background Information of University of Rwanda

The University of Rwanda is the only public University in Rwanda and as such it is a multi-campus, multi-disciplinary university intended to meet the economic, social and cultural needs of the country and its people. The University of Rwanda came into being in 2013 with amalgamation of six previous public institutions namely: National University of Rwanda, Kigali Institute of Education, Kigali Institute of Science and Technology, School of Finance and Banking, Institute of Agriculture and Animal Husbandry, and Kigali Health Institute. The University offers undergraduate and post-graduate training to both international and national students.

As a collegial system the university is composed by the following academic entities:

- College of Arts and Social Sciences (CASS),
- College of Agriculture, Animal Sciences and Veterinary Medicine (CAVM),
- College of Business and Economics (CBE),
- College of Education (CE),
- College of Medicine and Health Sciences (CMHS),
- College of Science and Technology (CST)

The University of Rwanda is also a multi-campus institution. It operates from departments and schools that make up Colleges which operate in different campuses such

as Huye, Nyarugenge, Nyagatare, Rukara, Gikondo, Busogo, Remera, Rubirizi, Nyamishaba, Kicukiro, Byumba, Kibungo and Rwamagana campuses. It is actually based in the new college of Business and Economics until the new headquarters are built adjacent to the College of Science and Technology. This study focused on undergraduate students based at Huye Campus.

1.1.1 The Huye Campus

The Huye Campus is based at Huye district in the southern province of Rwanda. Today the Huye campus accommodates not only College of Arts and Social Sciences which have the Headquarter at Huye but it is also home to some programs/schools from other colleges such as College of Agriculture, Animal Sciences and Veterinary Medicine (CAVM), College of Business and Economics (CBE), College of Medicine and Health Sciences (CMHS) and College of Science and Technology (CST) as listed below:

- School of Agriculture, Rural Development and Agriculture Economics from CAVM;
- School of Law, School of Arts and Languages, School of Social and Political Sciences from CASS;
- School of Economics and School of Tourism and Hospitality for CBE;
- School of Medicine and Pharmacy and School of Health Science from CMHS;
- School of Engineering, School of Pure and Applied Sciences and School of ICT and Telecommunication from CST.

By 2014, the Huye campus community was estimated to be around 11,000 students and 541 staff, of which the undergraduate students approximated 10,182, postgraduates 818, academic staff 384, and the administrative staff 157.

1.1.1.1 Huye Campus Library

The Huye campus library began in 1963 with the opening of the former National University of Rwanda housing only print information resources. It has however grown progressively over the years in size, services and range of information sources.

To date, The Huye campus Library provides a variety of scientific information both in print and electronic. It has a collection of 150,000 books, subscribes to 28 titles of printed journals and 33,000 e-journals and databases that can be accessed not only from Local Area Network (LAN) of workstations across the campus registered to staff and students, but also from internet connection via Lightweight Directory Access Protocol (LDAP) users' account. The total number of Huye campus library users is estimated to be 11,541 individuals of which 10,182 (88.22%) are undergraduate students. The total number of Huye campus library staff is 16.

The Huye campus Library inherited equipment from the former National University of Rwanda (NUR). The library is in charge of two ICT computer labs with a total of 68 computers all connected to the internet. The two computer labs are opened every day and remain accessible to the students and the users in general as per the library's policy. According to the Library website, (<http://www.lib.nur.ac.rw/>), in order to provide accurate, relevant and reliable information to the users, the library has subscribed to a

number of electronic journals that supports the various fields of learning offered in the University. The Huye campus Library has the following sections: Acquisition, Cataloguing and Classification, Serials, References, Circulation and ICT sections and a Rwandan section for special documents on Rwanda. The library also supports four documentation centres: Law documentation, School of Media and Social Sciences documentation, and Conflicts Management documentation.

1.1.1.1.1 The Vision and Mission of the Library

The vision of Huye campus library is to satisfy its users and provide the up-to-date, relevant and reliable documents to all Huye campus community such as academic staff, researchers, administrative and technical staff and students both postgraduate and undergraduate. Its mission is to support the teaching, learning, research and the community services (Rugengamanzi, 2012).

1.1.1.1.2 Information Services Offered by Huye Campus Library

The Huye compus library offers the following services:

1. Reference and Information Services:

There is a reference desk at Huye Campus library to assist users' reference queries and assist them to access the documents.

2. Online/Internet Services

The Main Library at Huye Campus has computers set aside for accessing online databases and the OPAC. In addition, it has computer labs used for accessing and using of e-journals, e-resources and e- books

For the improvement on the efficiency of service delivery, the Library in is 1999 automated its services. The Library software (Cross Ref software) has been in use since 2005 and is particular used by users in accessing the OPAC.

3. Technical Services

The different sections used by the library staff to assist users in their requests are as follows:

a) Acquisition

The acquisition section is responsible for the selection and purchase of materials or resources. The department receives requests from different faculties and processes orders for purchases. In collaboration with teaching staff from different faculties, the head of Acquisition gathers orders for the proposed documents and compiles the final list that is sent to the procurement for purchasing after the approval of the director of the library. The stamping and assigning of bar-codes to print material are done in this section

b) Circulation Desk

This section is located at the entrance of the Main Library. The borrowed books are recorded and discharged at this point. A title can be loaned for a period of 15 days renewed two times. The library charges a fine for overdue books at the rate of 200 Rwandan francs (0.03\$) per day. However, lecturers are allowed a long loan of one month renewed two times. If they delay in returning the book, they are also charged a fine equivalent to the above amount.

c) Cataloguing and Classification Section

The cataloguing and classification section is in charge of Creating of entries of items in the collection, assigning class numbers, creating authority files to include accepted form of access points. Used for consistency and uniformity when assigning index terms e.g. subject headings, production of catalogue cards, and checking of duplicate entries.

d) Special Collection Section

This section called also Rwandan Collection is a closed access research area. This section holds all documents on Rwanda written by Rwandan and/or any other author, about Rwanda. The major documents include government publications, Rwandan culture, theses and dissertations, novels and any other information on the people, land, and climate of Rwanda.

e) Periodicals Section

This section manages the current and retrospective periodicals such as magazines, journals, newspapers; bought or donated to the library. The loaning of materials in this section is not allowed. Users borrow for using within the periodical section and reading room. Library users use this section for research purposes and also for current awareness purposes.

1.2 Information Literacy in Huye Campus Library

At Huye campus the library orientation exercise is done at the beginning of every academic year during one or two hours.

During the academic year, a reference desk at Huye campus library assists users' reference queries and assists them to access the documents. The Online/Internet services assists users in accessing online databases, the OPAC and e-resources using library computer labs. Students writing their memoirs dissertation are trained to access and use of e-resources available at Huye Campus Library. The library through e-resources section organizes the training for fourth years on how to use e-resources available in the library.

1.3 Statement of the Problem

The success of IL skills at universities and other institutions of higher education have been associated with enabling infrastructures which include supportive policies, adequate information resources, competent human resources with prerequisite IL skills and knowledge, appropriate facilities and physical equipments (Virkus, 2003). However, at Huye Campus library, the information literacy infrastructure is at wanting, leading to inadequate use of information resources available. The policy guidelines that should help in students' information gathering, technology use and critical thinking approaches cannot ensure that IL is amalgamated into Campus- wide academic mandates in the form of strategic plans, syllabus templates and academic assessment measures.

Successful IL programmes have incorporated a range of modes of delivery of IL activities. These may include: informational courses integrated instructions, non-integrated instructions, signage, orientation visits, exhibits, slides, tapes and videotapes (Butuk, 2011). The IL activities at Huye Campus however, are based only on the orientation visits, and exhibits not to mention the gap in collaboration between library

staff and Faculties/ Schools. Such an environment has not been adequately supportive in building the information literacy skills to Huye Campus library users. As a consequence, the undergraduate students at Huye Campus are not able to maximize the use of the information resources available in the library for lifelong learning. They are unable to recognize when information is needed and do not have the ability of to identify, evaluate, select, locate and effectively use the needed information. Most undergraduate students at Huye Campus mainly depend on lecturers for their information and rarely undertake independent reading to seek more understanding of issues. These low IL competency levels not only affect the quality of the students' academic work, but also make them more dependent on information mediators such as library staff and lectures as well as denying them the opportunity to explore and exploit the vast range of information resources available. It is against this backdrop that this study sorts to investigate existing status, gap and prospects of information literacy skills among undergraduate students of Huye Campus with the view to propose strategies to address the existing challenge.

1.4 Aim of the Study

The aim of this study was to investigate information literacy skills among undergraduate students of Huye Campus with the view to propose strategies to improve the information literacy programmes offered to them.

1.5 Objectives of the Study

The objectives of the study were:

- To examine the current information literacy competencies of undergraduate students of Huye Campus;
- To appraise the IL activities at Huye Campus for undergraduate students;
- To identify the skills that library staff possess in delivery of IL activities
- To examine the existing infrastructure that supports the delivery of information literacy skills at Huye Campus;
- To establish the challenges experienced by Huye Campus in executing IL activities;
- To suggest strategies for enforcing and improving IL activities at Huye Campus

1.6 Research Questions

In order to address the research objectives, the study was guided by the following research questions:

- What is the current competency level of information literacy skills of Huye Campus undergraduate students?
- Which IL programmes/activities are offered at Huye Campus and how are they executed?
- What IL knowledge and skills do the library staff have?
- What policies, ICT facilities and equipment are used in the delivery of information literacy skills to Huye Campus library?
- What bottlenecks are experienced in the provision information literacy programmes for undergraduate students at Huye Campus?

- Which strategies could be adopted for effective delivery of information literacy activities at Huye Campus library?

1.7 Assumption of the Study

- Information literacy skills of undergraduate students of Huye Campus are not well developed due to unstructured IL program.
- The existing infrastructure for IL at Huye Campus is inadequate and this has derailed students IL development.
- IL skills among undergraduate students can be improved significantly if IL activities are administered properly and are effectively structured with the collaboration of faculty members, library staff and administrators.

1.8 Significance of the Study

The finding of this study on information literacy skills of undergraduate students at Huye campus library, university of Rwanda can be used to inform and expand knowledge-base associated with different aspects IL.

1.8.1 Policy Related Significance

The findings of the study can be used by the library staff in collaboration with the faculty to justify the need for developing an information literacy policy for undergraduate students and other library users. The developed IL policy can in turn be used to assess the existing IL programme and subsequent IL activities in meeting the set of objectives.

1.8.2 Pragmatic Significance

Based on the findings on assessment of existing IL activities in developing IL competency levels expected of undergraduate university as per IL models and standards, the library identify and develop information literacy programmes appropriate for the its users.

1.8.3 Theoretical Related Significance

The findings of the study can add information to the body of knowledge on information literacy and open new research relating to library and information searching and retrieving, effectively and efficiently using and communicating the information, not only in Huye Campus but also in other institutions in Rwanda.

1.9 Scope of the Study

The study assessed the Information Literacy skills of undergraduate students in the Huye Campus, University of Rwanda; the sample was drawn from undergraduate students, members of teaching staff, library staff and key administrators of the Huye Campus. This Campus was chosen because it is served by the Huye Campus Library that inherits the former National University of Rwanda Library staff and infrastructure (more equipped rather than others). The large number of qualified librarians is also working at Huye Campus Library. In addition, the library is largest in terms of information collection and currently serves all colleges except the College of Education. The study focused on only undergraduate students as they represent over 88% of the Huye Campus library users. In addition, the literature shows learning to undergraduate development of IL as opposed to

post graduate perhaps because it is foundation to higher education learning. Furthermore, the researcher's experience as a staff at the former NUR library developed interest questions relating to the adequacy and effectiveness of IL activities offered to the undergraduate students by the library.

Although the study focus is on undergraduate students, IL competency is a product of the knowledge and skills acquired. While the Huye campus library is mandated with the responsibility of conducting the IL programme, the schools are also expected to inculcate IL competencies in their students. Consequently, objectives 3-5 examines the capacity and challenges that the library and the campus face in providing IL programme.

1.10 Limitation of the Study

Limitations are matters and occurrences that arise in a study which are out of the researcher's control (Simon and Goes, 2013). They can be methodological, theoretical or epistemological.

This study used quantitative and qualitative approaches in data collection. For the qualitative approach the research used interview. However, considering that the researcher is a member of staff in the same library under study, literature shows that this may influence respondent's truthful response (Roberts, 2007). To validate the responses obtained from individual library staff, multiple responses on the same question was sort from different groups of library users. The researcher also avoided personal knowledge to influence interpretation of responses obtained and remained as objective as possible.

Questionnaires did not offer researcher the opportunity to probe for additional information or to clarify answers. However, this inadequacy was counterbalanced by interview which not only supplemented the data collected using questionnaire but also provides additional information including background information and spontaneous reaction. Respondents issued with questionnaires were also given sufficient time to think about their answers and/or consult other sources in an effort to obtain reliable information.

Given that the research was carried out at Huye Campus, undergraduate students, the specific findings cannot be generalized to the other Campuses or institutions in the country.

Theoretically, the study was confined to ACRL standards and Seven Faces of information Literacy models.

1.11 Chapter Summary

The chapter above introduces the research and concerns the following relevant elements. First, it presents the University of Rwanda, the Huye Campus and the Huye Campus Library. Second, it discusses the statement of the problem, the aim and the objectives of the study, the research questions, the assumption, the significance, the scope and the limitation of the study.

1.12 Definition of Operational Terms

Information: Information is anything that gives knowledge in the form of facts in a medium that is capable of communicating.

Literacy: Literacy is the ability to identify, understand, interpret, create, communicate and compute, using printed and written materials associated with varying contexts. Literacy involves a continuum of learning enabling an individual to achieve his or her goals, develop his or her knowledge or potentials, and to participate fully in the community and wider society (UNESCO, 2005).

Information Literacy: Information Literacy is the ability to recognize when and what information is needed, understand how that information is organized, identify the best sources, locate and evaluate them critically and have the ability to use effectively the information retrieved.

Information Literate: is an individual able to determine the extent of information needed, access the needed information effectively and efficiently, evaluate information and its sources critically, incorporate selected information into one's knowledge base, use information effectively to accomplish a specific purpose and use the information ethically and legally.

Information Literacy Activities: The information literacy activities may include the library use-orientation, workshops, and Information Literacy integrated courses (Mittermeyer, 2003).

Information Literacy Programmes: Basically information literacy programmes are action oriented, while helping to solve the real life problems and making the correct decisions (Ranaweera, 2008).

Information Literacy Infrastructure: Information infrastructure is the basic systems and services that are necessary for an informational organization to run smoothly. This includes IL policies, information resources (print and electronic) available, human resources skills and knowledge, facilities and physical equipment (Virkus, 2003).

Information Seeking Behavior: Information seeking behavior refers to the way people search for and utilize information.

Information Needs: Information need is an individual or group's desire to locate and obtain information to satisfy a conscious or unconscious need. It is a gap in knowledge that a person experiences that gives rise to an individual searching for an answer (Reitz, 2007).

CHAPTER TWO

LITERATURE REVIEW

2.0 Introduction

According to Mugenda and Mugenda (2003) literature review is the systematic identification, location and analyses of documents that contain information that may be related to the problem that is being studied. Boote and Beile (2005) add that the literature review is a systematic summary of the recognized facts and information in scientific literature about a given subject. Literature review shows us a pre-requisite for gaining back ground knowledge of the research topic and helps to make a case for the importance of the problem, to build it into a conceptual framework and to avoid duplication of effort. Literature review enables the researcher to find out what has been done in the area and show the gap that is necessitate to be investigated. The main sources of the literature used were thesis, journal articles, seminar papers, government policy papers, conference proceedings, training manuals, legislature document, research reports, business journals, textbooks, newspapers, and periodicals. The meticulous care for study inclusion in a balanced impartial way serves as a measure of high quality (Crombie and Davies, 2006).

The types of literature review can be broadly classified into the following categories: traditional or narrative, systematic, meta-analysis, and meta-synthesis (Green et al., 2006; Liberati et al., 2009).

Traditional or narrative literature review critiques and summarizes a body of literature, draws conclusions about the topic, identifies gaps or inconsistencies in a body of

knowledge and requires a sufficiently focused research question (University Libraries, 2015). A systematic review on the other hand is focused on a research question, trying to identify, appraise, select and synthesize all high quality research evidence and arguments relevant to that question. A systematic literature review is more rigorous and well-defined approach and comprehensive. It details the time frame within which the literature was selected and the methods used to evaluate and synthesize findings of the studies in question. According to University Libraries (2015), a meta-analysis is a form of reductive systematic review that integrates findings from different studies on the same subject and analyzes them using standardized statistical procedures (APA, 2010). In a quantitative study, a meta-analysis integrates findings from a large body of quantitative findings to enhance understanding. It draws conclusions and detects patterns and relationships. A meta-synthesis is on the other hand a non-statistical technique and it integrates, evaluates and interprets findings of multiple qualitative research studies. A meta-synthesis identifies common core elements and theme. It involves analyzing and synthesizing key elements (University Libraries, 2015).

Reviews can be discriminated concerning their objectives and they are following classifications: integrative research review, theoretical review, methodological review, thematic review, state-of-the-art review, historical review, review complement, theoretical contribution, research critique, forum paper.

The integrative research review critically evaluates material that has already been published (Taveggia, 1974; APA, 2003). The reviewer shapes a coherent whole within a

comprehensive, systematic structure (comparable with primary research) describing how the particular issue is conceptualized within the literature, how research methods and theories have shaped the outcomes, strengths and weaknesses of the literature (Davies and Crombie, 2003). According to Russell (2005), the integrative literature review has many benefits to the scholarly reviewer, including evaluating the strength of the scientific evidence, identifying gaps in current research, identifying the need for future research, bridging between related areas of work, identifying central issues in an area, generating a research question, identifying a theoretical or conceptual framework, and exploring which research methods have been used successfully.

A theoretical review describes in a critical way the evolution of theories and the way they are understood in different contexts (Davies and Crombie, 2003). The theoretical review draws on existing research literature to advance theory (APA, 2003). It primarily explains how a theory shapes research and our understandings since research is carried out in the frame of exploring theories (Davies and Crombie, 2003).

According to Davies and Crombie (2003) a methodological review describes employed research designs, methods and procedures. It highlights strengths and weaknesses of methodological tools and explores how methods constrain or open up opportunities. The review focuses on new methodological approaches, modifications of existing methods and discussions of quantitative and data analytic approaches. According to Creighton University Institutional Review Board (2010) the intent of the review is to assist

investigators to meet a minimally sufficient set of criteria to conduct meritorious research.

A thematic review describes particular areas of the literature. It focuses a central element which is taken under consideration from different point of views. It can be a comparative study to analyze one specific domain (Davies and Crombie, 2003).

A state-of-the-art review considers mainly the most current research in a given area or concerning a given topic. It often summarizes current and emerging trends and research priorities. The review aims to provide a critical survey of the extensive literature produced in the past decade, a synthesis of current thinking in the field. It may offer new perspectives on an issue or point out an area in need of further research (Davies and Crombie, 2003).

According to Davies and Crombie (2003) a historical review is a survey of the development of a particular field of study. It analyses the literature in an historical context. According to Munslow (1997) and Callahan (2010) the historic literature review reconstructs, constructs, or deconstructs the understanding of some past phenomenon (or the development of a contemporary phenomenon) through the lens of literature that captures historic forces.

A comparison of two perspectives provides a way to understand a given topic based on the literature from two or more disciplines since similar topics may be subject of research in different scientific or scholarly fields (Davies and Crombie, 2003). A review

complemented by an empirical study is a full review on a subject that is followed by a short empirical study that investigates the outcomes of the review (Davies and Crombie, 2003).

This study used a systematic review focused on research questions and objectives. It was needed to try to identify, appraise, select and synthesize high quality research evidence and arguments relevant to those research questions and objectives.

The systematic review summary of the recognized information in scientific literature about the subject includes IL models; forms of IL, development of IL programs in academic libraries, Importance of IL, competency level of IL skills, programmes/activities put across to achieve information literacy, policies that guide the delivery of IL skills, ICT facilities/equipment and IL, challenges encountered in offering IL programs and strategies for improvement of IL.

This chapter part first examines the theoretical framework that underpins information literacy, before reviewing other documented works on the subject.

2.1 Theoretical Framework

The theoretical framework is the structure that can hold or support a theory of a research study (Swanson, 2013). The theoretical framework introduces and describes the theory that explains why the research problem under study exists and indicates theories and analytic models that are relevant to the research problem being investigated. It may be in the form of a theory or a model whereas a theory refers to a systematic body organization

of knowledge that can be applied in a relatively wide variety of circumstances, especially a system of assumptions, accepted principles and rules of procedure devised to analyze, predict or otherwise explain the nature or behavior of a specified set of phenomena (Mason and Culnan, 1995) whereas a model is often used to describe the application of theory in particular purpose. Chakravarty (2008) and Mitchell (2010) discuss different IL models such as: the Association of College Research Library (ACRL) model, the Big 6 model, the Seven Pillars model, Seven Faces of information Literacy, the Six Frames Model, the UNESCO model, the Hughes-Shapiro model, the Socio-technical practice model, Sundin's Literacy Approach Framework, ISTE NETS Standards, International Association for the Evaluation of Educational Achievement (IEA) SITES Assessment Framework, and Bloom's Taxonomy.

This study presents the Big 6 model, the Seven Pillars Model, the Seven Faces of information Literacy and the Association of College Research Library (ACRL) model. Among these four models reviewed, the Association of College Research Library (ACRL) model was chosen for this study.

2.1.1 The Big 6 Model

Developed by Eisenberg and Berkowitz (2004), the Big 6 model focuses on the following six steps involved in an IL process: task definition, information seeking strategies, location and access, use of information, synthesis, and evaluation.



Figure 2.1: Big 6 model

Source: <http://www.summit.k12.co.us/Page/3001/>

Although the Big 6 model has been widely used in thousands of K-12 schools, higher education institutions, and corporate and adult training programs (The Big 6 overview <http://big6.com/pages/about/big6-skills-overview.php> it has notable weaknesses. Firstly, the model focuses more on processes and almost exclusively on IL as an information problem solving approach. With this model, problem/needs are identified, sources are determined and best sources are selected, located and extracted, organized, presented and judged. Secondly as aptly noted by Mitchell (2010), the Big 6 model does not delve into legal/ethical issues. For these two reasons, this model was not adopted for the study.

2.1.2 The Seven Pillars Model

In 1999, The SCONUL Working Group on Information Literacy published “Information skills in higher education: a SCONUL position paper” (SCONUL, 1999), introducing the Seven Pillars of Information Skills model

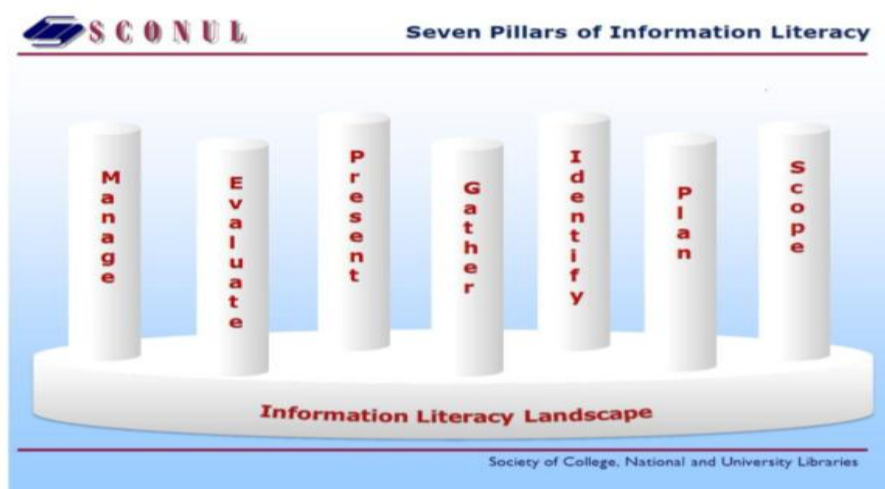


Figure 2.2: SCONUL Seven Pillars of Information Literacy

Source: SCONUL Working Group on Information Literacy (2011)

<http://www.sconul.ac.uk/sites/default/files/documents/coremodel.pdf>.

Since then, the model has been adopted by librarians and teachers around the world as a means of helping them to deliver information skills to their learners (Mitchell, 2010; Bent and Stubbings, 2011).

In 2011 it was felt that the model needed to be updated and expanded to reflect more clearly the range of different terminologies and concepts which we now understand as Information Literacy (Bent and Stubbings, 2011). The core seven pillars are: Identify scope, plan, gather, evaluate, manage and present.

Identify involves to be able to identify a personal need for information. Scope implies the ability to assess current knowledge and identify gaps. Plan implies the ability to construct strategies for locating information and data. Gather involves the ability to locate and

access the information and data needed. Evaluate implies the ability to review the research process and compare and evaluate information and data. Manage implies the ability to organize information professionally and ethically. Present involves the ability to apply the knowledge gained: presenting the results of their research, synthesizing new and old information and data to create new knowledge and disseminating it in a variety of ways.

The SCONUL model deals with the information organization professionally and ethically, the ability to apply the knowledge gained: presenting the research results, synthesizing new and old information and data to create new knowledge and disseminating it in a variety of ways (Bent and Stubbings, 2011). But the SCONUL model doesn't delve into the ability of IL wisdom creation as the Seven Faces Model does.

2.1.3 Seven Faces of Information Literacy

The Seven Faces of Information Literacy model includes information technology, sources, process, control (information management), knowledge construction, knowledge extension, and wisdom (Bruce, 1997). Each of these faces of information is perceived as existing within the context of technology and use spheres. According to Bruce (2002), the Seven Faces model emphasis on the relationship between technology and information in addition to defining core literacies.

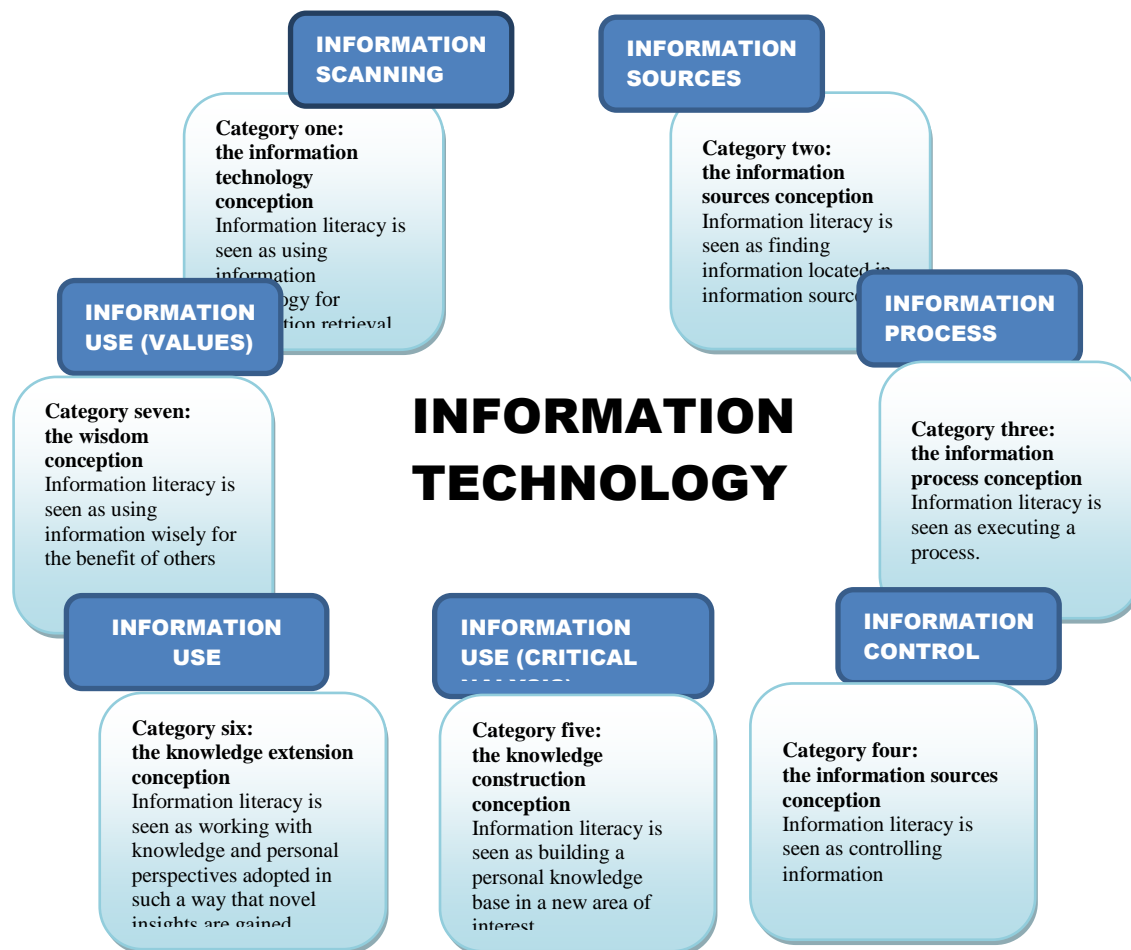


Figure 2.3: The Seven Faces of Information Literacy in Higher Education

Adopted and modified from: Bruce, C. <http://www.christinebruce.com.au/informe/>

This model highlights the relevance of information technology, the sources of information as media and formats, the conception of information as its used to solve new problems, the information control as document management, the knowledge construction as the process of information synthesizing in order to build knowledge, the knowledge extension as the use of information to create new knowledge and finally wisdom as a process of finding large contexts in information to create wisdom.

This study was based on the Information Literacy Competency Standards for Higher Education that provides a framework for assessing the information literate individual advanced by the Association of College Research Library (ACRL) model and Seven Faces of Information Literacy model. The ACRL shows five standards and twenty-two performance indicators for information literacy. The study assessed also the ability of: new knowledge creation, new knowledge management and extension and IL wisdom from the Seven Faces of Information Literacy model (Bruce, 1997). The Ability of new knowledge creation was used to examine how the undergraduate students at Huye Campus articulate knowledge and skills transferred from the existing knowledge and creates the new one. The Ability of new knowledge management and extension were used to understand whether the undergraduate students at Huye Campus are able to: choose a communication medium and format that best supports the purposes and the intended audience; communicate clearly using a style that supports the purposes of the intended audience; preserve, store, reuse, record and archive information for future use. The Ability of IL wisdom was used to determine if the undergraduate students at Huye Campus are able to find larger context in information to create wisdom. Furthermore, the study assessed also the ability of use information technology in the various Information Literacy process. According Bruce (1997) Seven Faces of Information Literacy model- Category one: the information technology conception "*Information literacy is seen as using information technology for information retrieval and communication*" was complimented with the Association of College Research Library (ACRL) model. This experience set the importance of information technology for information access and

personal networking and one of its major roles is to make that information accessible. Technology also plays a vital role in allowing the information user to stay informed and to manipulate information that has been located. When information literate people utilize Information Technology, they are viewed as those who can scan the information environment to attain a high level of information awareness.

2.1.4 The ACRL odel

Association of College Research Library (ACRL) standard (2007) breaks information literacy into five main areas: Know, Access, Evaluate, Use, and Ethical/Legal and these broad areas are then broken down into performance indicators which focus on both skill and awareness based indicators.

- 1. Know:** the capacity of literate to determine the nature and extent of the information needed.
- 2. Access:** the literate accesses needed information effectively and efficiently.
- 3. Evaluate:** the information literate evaluates information and its sources critically and incorporates selected information into his or her knowledge base and value system.
- 4. Use:** the information literate, individually or as a member of a group, uses information effectively to accomplish a specific purpose.
- 5. Ethical / Legal:** the information literate understands many of the economic, legal, and social issues surrounding the use of information and accesses and uses information ethically and legally. This standard recognizes that literate must be taught the social,

economic and political issues surrounding information, specifically the ethical and legal uses of information and its technology.

The ACRL model is relevant for this study as it underscores the information seeking and use process as key to how IL is conceived and the ethical use of information is of primary importance. Despite these strengths, the ACRL model is deficient as the role of authorship, technology, and learning is little investigated in the model.

Authorship, technology and learning are important to this study. Authorship it implies responsibility and accountability for published work. Contributors who have made substantive intellectual contributions to a paper are given credit as authors, but also they understand their role in taking responsibility and being accountable for what is published. Authorship confers credit and has important academic, social, and financial implications.

In a digital world, information literacy requires users to have the skills to use information and communication technologies and their applications to access and create information (Pérez, 2014). Information literacy forms the basis for lifelong learning. It is common to all disciplines, to all learning environments, and to all levels of education. It enables learners to master content and extend their investigations, become more self-directed, and assume greater control over their own learning (Burnett, 2015). Thus it is important to assess if the Huye Campus undergraduate have such skills. The ACRL model's deficiencies are adequately integrated within the Seven Face of Information Literacy model which emphasis on the relationship between technology and information literacy.

2.1.4.1 Relevance of the ACRL Model to this Study

The Association of College Research Library (ACRL) standards (2007) has standards each of which specifies specific knowledge and skills, that would the build the IL competency levels of the students. Each of these standards are described and their multiple level of knowledge and skills interpretation identified. Although ACRL provide many more IL outcome expected of each standard, the study identified a few in each category that were considered substantive and appropriate in assessing the IL competency levels of the undergraduate students at Huye campus.

Standard one: The capacity of literate to determine the nature and extent of the information needed.

In this study, this was conceptualized as the student's ability to:

(1) Recognize the need for accurate information and the value of general information sources.

Can the student recognize the need to increase his general knowledge about the topic and select reliable sources to gain a general overview of the topic?

(2) Understand what a focused topic is and how to shape one by broadening and narrowing ideas.

Is the student able to define or modify a topic to achieve a manageable focus and refine the topic based on discoveries through the research process?

(3) Identify appropriate subject headings and keywords.

Does the student identify key concepts and terms that best describe a research topic?

(4) Choose best format for a given purpose.

Does the student identify the value and differences of potential resources in a variety of formats?

(5) Understand nature and use of potential sources.

Does the student identify the purpose and audience of potential resources, and use appropriate sources for the type of research project being undertaken?

Standard two: The literate accesses needed information effectively and efficiently.

In this study, this was conceptualized as the student's ability to:

(1) Generate keywords and synonyms to conduct an electronic search.

Does the student identify keywords, synonyms, and phrases to search for the information needed, and understand that keyword searching can be used to retrieve subject headings and uses this method to locate them?

(2) Interpret bibliographic records and use them effectively.

Does the student use various search systems to retrieve information in a variety of formats and recognize location information in the library catalog?

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

In this study, this was conceptualized as the student's ability to:

(1) To summarize the main ideas to be extracted from the information gathered.

Does the student read the text and select main ideas, restate textual concepts in his/her own words and select data accurately, and identify verbatim material that can be then appropriately quoted?

- (2) To articulate and apply initial criteria for evaluating both the information and its sources.

Does the student examine and compare information from various sources in order to evaluate reliability, validity, accuracy, authority, timeliness, and point of view or bias? Does the student analyze the structure and logic of supporting arguments or methods? Does he/she recognize prejudice, deception, or manipulation? Does he/she recognize the cultural, physical, or other context within which the information was created and understands the impact of context on interpreting the information?

- (3) To synthesize main ideas to construct new concepts.

Does the student recognize interrelationships among concepts and combine them into potentially useful primary statements with supporting evidence?

Does he/she extend initial synthesis, when possible, at a higher level of abstraction to construct new hypotheses that may require additional information? Does he/she utilize computer and other technologies (e.g. spreadsheets, databases, multimedia, and audio or visual equipment) for studying the interaction of ideas and other phenomena?

- (4) To compare new knowledge with prior knowledge to determine the added value, contradictions, or other unique characteristics of the information.

Does the student: determine whether information satisfies the research or other information need, use consciously selected criteria to determine whether the information contradicts or verifies information used from other sources, draw conclusions based upon information gathered, test theories with discipline-appropriate techniques (e.g., simulators, experiments), determine probable accuracy by questioning the source of the data, the limitations of the information gathering tools or strategies, and the reasonableness of the conclusions, integrate new information with previous information or knowledge, select information that provides evidence for the topic?

- (5) To determine whether the new knowledge has an impact on the individual's value system and takes steps to reconcile differences.

Does the student: investigate differing viewpoints encountered in the literature, determine whether to incorporate or reject viewpoints encountered?

- (6) To validate understanding and interpretation of the information through discourse with other individuals, subject-area experts, and/or practitioners.

Does the student: participate in classroom and other discussions, participates in class-sponsored electronic communication forums designed to encourage discourse on the topic (e.g., e-mail, bulletin boards, and chat rooms), seek expert opinion through a variety of mechanisms (e.g., interviews, e-mail, list-servers)?

- (7) To determine whether the initial query should be revised.

Does the student determine if original information need has been satisfied or if additional information is needed, reviews search strategy and incorporates additional

concepts as necessary, review information retrieval sources used and expand to include others as needed?

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

In this study, this was conceptualized as the student's ability to:

- (1) To apply new and prior information to the planning and creation of a particular product or performance.

Does the student organize the content in a manner that supports the purposes and format of the product or performance (e.g. outlines, drafts, storyboards); articulate knowledge and skills transferred from prior experiences to planning and creating the product or performance; integrates the new and prior information, including quotations and paraphrasing, in a manner that supports the purposes of the product or performance, and manipulates digital text, images, and data, as needed, transferring them from their original locations and formats to a new context?

- (2) To revise the development process for the product or performance.

Does the student maintains a journal or log of activities related to the information seeking, evaluating, and communicating process, and reflect on past successes, failures, and alternative strategies?

- (3) To communicate the product or performance effectively to others.

Does the student choose a communication medium and format that best supports the purposes of the product or performance and the intended audience? Does he/she use a

range of information technology applications in creating the product or performance, incorporate principles of design and communication, and communicate clearly and with a style that supports the purposes of the intended audience?

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

This standard recognizes that literate must be taught the social, economic and political issues surrounding information, specifically the ethical and legal uses of information and its technology.

In this study, this was conceptualized as the student's ability to:

- (1) To understands many of the ethical, legal and socio-economic issues surrounding information and information technology.

Does the student identify and discuss issues related to privacy and security in both the print and electronic environments, identify and discuss issues related to free vs. free-based access to information, identify and discuss issues related to censorship and freedom of speech, and demonstrate an understanding of intellectual property, copyright, and fair use of copyrighted material?

- (2) To follow laws, regulations, institutional policies, and etiquette related to the access and use of information resources.

Does the student participate in electronic discussions following accepted practices (e.g. "Netiquette")? Does he/she use approved passwords and other forms of ID for access to information resources? Does he/she comply with institutional policies on

access to information resources? Does he/she preserve the integrity of information resources; equipment, systems and facilities e.g. legally obtains, stores, and disseminates text, data, images, or sounds? Does he/she demonstrate an understanding of what constitutes plagiarism and does not represent work attributable to others as his/her own? Does he/she demonstrate an understanding of institutional policies related to human subjects' research?

(3) To acknowledge the use of information sources in communicating the product or performance.

Does the student select an appropriate documentation style and use it consistently to cite sources? Does he/she post permission granted notices, as needed, for copyrighted material?

2.2 An Overview of Information Literacy

This section of overview of information presents the historical development of IL, the variant forms of such as basic literacy, library literacy, media literacy, ICT literacy and critical literacy; the development of information literacy programs in academic libraries and the importance of information literacy.

2.2.1 Historical Development of Information Literacy

Analyzing the history of policies behind information literacy from 1974 to 1994 Doyle (2001) notes that the term of "Information Literacy was coined in 1974 by Paul Zurkowski, president of Information of Industry Association (IIA) in a proposal submitted to the National commission on Libraries and Information Sciences (NCLS) in

the USA. In this work Zurkowski suggested that, “*the top priority of the National Commission on Libraries and Information Science (NCLIS) [NCLIS] should be directed toward establishing a major national program to achieve universal information literacy by 1984*” (Pashaie, 2004, p.7). The 1970s were characterized by the proliferation of information and both educators and librarians began to take special interest in the information literacy debate. In the 1980s, librarians recognized the need for Information Literacy Skills and the skill of managing information in digital form. The emergence of the information technologies was recognized as an important attribute of information literacy. Later in 1987, American Library Association created Presidential Committee on Information Literacy. By the beginning of the 1990s, the new definition of Information Literacy was generally accepted and also adopted by both librarians and educators. An important step in standardizing information literacy standards in higher education was thus reached (Kingori, 2013). In December 2000, the USA Department of Education published “*e-learning: putting a World-Class at the fingertips of all children.*” This formed a significant landmark in the recognition and prioritization of Information Literacy internationally (Doyle, 2001).

2.2.2. Forms of Information Literacy

Information literacy is a broad term encompassing both information and digital skills. Using information literacy skills includes accessing information in traditional learning resources such as books and journals as well as using new digital technologies such as wikis, blogs or podcasts. This may be used to explain why there are variations in authors views of how the categories of IL.

Shapiro and Hughes (1996) for instance, identify seven self-explanatory dimensions of information literacy namely: tool literacy; resource literacy; social-structural literacy; research literacy; publishing literacy; emerging technology literacy; and critical literacy. Chakravarty (2008), distinguishes them as: library literacy, media literacy, computer literacy, internet literacy, research literacy, social structural literacy, publishing literacy, emerging technology literacy and critical thinking skills.

Common categorizations across these authors are the basic literacy skills, library literacy skills, media literacy skills, ICT literacy skills, and critical literacy skills. While the terms used may appear to be different, there is still great overlap in content between the different typologies used. A description of these categories is provided below.

2.2.2.1 Basic Literacy

The basic literacy involves reading, writing, speaking, listening, counting, calculating, and perception and drawing.

2.2.2.2 Library Literacy

According to Foad (2000) library literacy in its traditional sense is related to skills needed to do effective research in a library. These include the ability to: recognizing an information need, understanding and recognizing the availability and location of different resources used to answer a specific information need, understanding the organization of these resources, translate an information need into an effective search strategy, and use different techniques to discriminate among search results. A library literate individual is also expected to demonstrate an understanding of the form, format, and location of

library resources as well as show an understanding of the access methods of both physical and electronic information resources.

Chakravarty further notes that in the current digital era, the library literate person is also expected to: understand and use the IT-based tools relevant to the work of today's researcher and scholar, format and publish research and ideas electronically in textual and multimedia forms including via World Wide Web, electronic mail and distribution lists, and CD-ROMs, understand the logical system of hierarchical organization of library system and its similarities to other such systems, know how to use indexes, the library catalogue and the web Online Public Access Catalogue (OPAC) and other opportunities offered by the library.

2.2.2.3 Media Literacy

Horton (2007) considers that media literacy embraces everything from having the knowledge needed to use old and new media technology to having a critical relationship to media content in a time when the media constitute one of the most powerful forces in society. Proponents of media literacy view increased media knowledge in society as contributing to participation, active citizenship, competence development and lifelong learning. In this way, the population's media literacy becomes a necessary part of ensuring a democratic society.

According to American Library Association (2000) media literacy means the knowledge and skills necessary to understand all of the mediums and formats in which data, information and knowledge are created, stored, communicated and presented. In other

words, media literacy is concerned with helping learners develop an informed and critical understanding of the nature of the media used to transmit information in this information age; how various media work, what constitutes media, how they produce meaning, how they are organized, and how they construct reality. Media literacy may also be considered as concerning type of media and purpose of media. Type of media refers to broadcast, print, or online information whereas purpose refers to inform, entertain or persuade.

2.2.2.4 ICT Literacy

Pérez (2014) argues that in a digital world, information literacy requires users to have the skills to use information and communication technologies and their applications to access and create information. Thus, the ability to navigate in cyberspace and negotiate hypertext multimedia documents requires both the technical skills to use the Internet as well as the literacy skills to interpret the information.

Like basic literacy, technology literacy is a continuum of skills that can always be improved, and, like library literacy, students receive technology experience and instruction in a hit or miss fashion depending on which teachers they may have over the years (Ferguson, 2003).

Foad (2000) adds that ICT or computer literacy aims at providing the learner the ability and necessary skills to use the computer as a tool to access, process, refine, and communicate information. For students, this implies developing base level of skills such as familiarity with operating systems, word processors, spreadsheets, internet browsers, and e-mail programs.

2.2.2.5 Critical Literacy

Critical literacy is the ability to read texts in an active, reflective manner in order to better understand power, inequality, and injustice in human relationships (Stambler, 2013). It may also be variably defined as the ability to evaluate critically the intellectual, human and social strengths and weaknesses, potentials and limits, benefits and costs of information technologies (Chakravarty, 2008). The development of critical literacy skills enables people to interpret messages in the modern world through a critical lens and challenge the power relations within those messages. According to Coffey (2008), teachers who facilitate the development of critical literacy encourage students to interrogate societal issues and institutions like family, poverty, education, equity, and equality in order to critique the structures that serve as norms as well as to demonstrate how these norms are not experienced by all members of the society.

2.2.3 Development of Information Literacy Programs in Academic Libraries

The roots of information literacy were initiated by librarians over years. Early development of information literacy programs can be traced back to the 1980s. Lake (1986) noted that the *Carnegie Foundation Report* outlined the importance of an academic library program to undergraduate education by stating that the quality of a college is measured by the resources for learning on the campus and the extent to which students become independent, self-directed learners. Thus the development of modern library instruction beginning with IL in its earliest form can be traced through the various techniques and strategies of basic bibliographic instruction.

Bennett (2007) observes that although the roots of information literacy are firmly embedded in libraries and library instruction, information literacy is a concept important in all disciplines. In the development of trends in IL within the Library Science field, there has been a move from simple bibliographic instruction to library instruction to what is referred to today as information literacy. This evolution, according to Bennett, has taken place within both libraries and information science education. The technological changes worldwide have encouraged librarians and Library Information Science (LIS) programs to rethink and reevaluate many of their approaches and strategies and many times force major changes in approaches and curriculum development.

Information Literacy Instruction is alive and well in many campuses today. However, there is much work to be done before their integration in the curriculum becomes standard practice. This indicates that there are still key challenges and issues regarding IL and its implementation. Bennett states that librarians remain the primary advocates of information literacy on most campuses. Their advocacy often encounters a campus environment that, although rarely hostile, is often uninformed, indifferent, or occupied with other priorities (Bennett, 2007).

As Rockman (2002) states however, information literacy is no longer a library issue, but rather a critical, campus-wide issue, a learning issue, and an education issue. There is a need to foster critical thinking skills in students to promote information literacy. The implementation of IL is a broad initiative that incorporates the whole institution and requires the community's involvement. Its roots may have started in librarianship, but

movement has been enhanced by all members of the university. As new technologies are used, the need to educate and prepare students to use these technologies effectively becomes crucial for their survival (Rockman, 2002). In universities and colleges, librarians must take the initiative, and encourage all faculties in all disciplines to be involved in the IL movement.

2.2.4 Importance of Information Literacy

Information literacy is important at all levels of study and research. It is best developed within a generic framework to ensure a measure of consistency. Likewise, IL is best developed when embedded within the academic curriculum in the context of the discipline rather than as a bolt-on removed from the subject context (Ranaweera, 2008).

Information literacy is one of the essential abilities necessary to students in digital age it is a set of abilities requiring individuals to recognize when information is needed and have the ability to locate, evaluate, and use effectively the information needed (American Library Association, 1989). Information literacy allows us to cope with the data smog, by equipping us with the necessary skills to recognize when we need information, where to locate it, and how to use it effectively and efficiently. Consequently it helps decision making and productivity which is beneficial to the society.

Bundy (2004) explains the importance of information literacy anchored on three main elements: generic skills, information skills, and values and beliefs. According to Bundy, information literacy allows us to gain firstly the generic skills that concern the problem solving, collaboration, team work, communication, critical thinking skills. Secondary the

information skills is concerned with information seeking, information use, and information technology fluency; lastly values and beliefs, relate to the use of information wisely and ethically, bearing in mind social responsibility and community participation.

He sums information literacy as the ability to:

- Recognize a need for information
- Determine the extent of information needed
- Access information efficiently
- Critically evaluate information and its sources
- Classify, store, manipulate and redraft information collected or generated
- Incorporate selected information into their knowledge base
- Use information effectively to learn, create new knowledge, solve problems and make decisions
- Understand economic, legal, social, political and cultural issues in the use of information
- Access and use information ethically and legally
- Use information and knowledge for participative citizenship and social responsibility
- Experience information literacy as part of independent learning and lifelong learning.

2.2.5 Information Literacy Infrastructure

Infrastructure is the basic systems and services that are necessary for an organization to run smoothly. The information literacy infrastructure is the availability of information

resources in all media- print and electronic, with information and communication technology networks which enhance IL (Virkus, 2003). The success of the students' skills at universities and other institutions of higher education is supported by the power of the information infrastructure such as the IL policy that can guide the delivery of the IL knowledge and skills as well as give the procedure on how to assess the acquired knowledge and skills; the information resources and the staff that have effective competency in IL skills. Staff must be encouraged to work together to analyze student curriculum needs, develop a broad instruction plan, set information literacy goals, and design specific unit and lesson plans that integrate the information skills and classroom content (Progressive Education and Learning website, <http://institute-of-progressive-education-and-learning.org/>).

The effectiveness of the IL programs depends on the existence of good information infrastructure. Information literacy programmes need to be implemented mainly by the competent library staff in universities in order to achieve library goals and to convert their users to lifelong learners and critical thinkers. However these programs will be successful if librarians work in collaboration with teaching and administrative staff. Black et al. (2001) emphasize on the need to build a strong IL programme founded on a librarian-faculty relationship.

2.2.5.1 Programmes/ Activities put Across to Achieve Information Literacy

Plotnick (1999) states that information literacy instruction in higher education can take a variety of forms: stand-alone courses or classes, online tutorials, workbooks, course-

related instruction, or course-integrated instruction. To integrate instruction in information competence throughout the curriculum and to add information competence as a requirement for graduate students, academic librarians with the collaboration of faculties/schools and administrative must work together through different IL activities and at different levels. Mittermeyer (2003) and Butuk (2011) in their works identify various modes of delivery of IL activities. These may include informational courses, integrated instructions, non-integrated instructions, signage, orientation visits, exhibits, slides, tapes, videotapes, use-orientation, and workshops.

2.2.5.1.1 IL Activities

The central mission of library instruction is to create information literate students. Developing lifelong learners is central to the mission of higher education institutions. By ensuring that individuals have the intellectual abilities of reasoning and critical thinking, the libraries and universities help them construct a framework for learning how to learn through different IL activities. The information literacy activities may include the library use-orientation, workshops, and Information Literacy integrated courses.

According to Kavulya (2003) and Butuk (2011), Library-use orientation is an essential activity done to equip the new learners with skills they require to effectively utilize the library's resources. The library orientation includes many activities such as the distribution of informational material that describes the library system, the resources and services, tours conducted by the users and demonstrations on how to find and retrieve information using different tools such as catalogues, and journal indexes. While library

orientation concentrates on how to use a physical structure, bibliographic instruction and user education on the mechanics of using particular resources, the IL workshops play an important role in helping students to gain information skills that can help them in their research, problem solving, evaluation and communication skills. Don and Melissa (2011) established that the students who attended IL workshops felt more confident in their searching skills after attending such workshops. Based on the guiding theoretical frameworks and reports on students' preferences to learning, the workshop design includes several features to facilitate learning. Ranaweera (2008) suggests the introduction of IL course in curriculum by the librarian in collaboration with the faculties as another activity that can promote information literacy. Similar sentiments are echoed by Black et al. (2001).

2.2.5.1.2 IL Skills

IL is a necessity to equip the student in higher education with required skills to learn more effectively, develop creative thinking and produce high quality academic. Despite these unquestionable outcomes of information literacy skills, undergraduate students' information-searching skill problems have regularly been reported by librarians and other information professionals as noted by Butuk (2011). The majority students join universities and other institutions of higher learning for the first time knowing very little or nothing about basic library use, information search skills, computer-related skills or the vast range of information sources. This explain the traditional custom by most libraries of offering a basic information literacy course to the students during their first

week of orientation in an effort to acquaint them with the basic knowledge of library use. However, the scope of an IL programme is wider than just library use.

According to American library association (2000), Information literacy has extended to create a curriculum covering the following seven components:

- Defining the need for information
- Initiating the search strategy
- Locating the resources
- Assessing and comprehending the information
- Interpreting the information
- Communicating the information
- Evaluating the product and process

Knowledge on how to do things, how to communicate and how to work with other people has been a subject of interest and a most precious wealth that humans possess since ancient times yet students' skills to acquire it are still low (Moeller et al., 2011). For successful IL programmes in institutions of higher learning, Fourie (1999) argue that students' attitudes towards information foraging and use require total change. Similarly, Harrison and Rourke (2006) state that the integration of information literacy into university's curricula is only possible through the understanding between the librarians, students and faculties. Skagen, et al., (2006) too see collaboration between the libraries and academic departments as an exercise that can be used to assist students. True collaboration, according to these authors, is based on shared goals which the parties have

negotiated and made explicit; calls for a contract between the parties, or a strategy plan, where each part's responsibilities and competencies are made clear and recognized; and takes place at all levels within a higher education institution. Both a bottom-up and a top-down approach to true collaboration are necessary.

2.2.5.1.3 Staff Training on IL

The development of information literacy skills and knowledge throughout the University community is an essential element of the Library's mission. The responsibility for supporting the development of information literacy knowledge and skills is a partnership between the Library and academic staff and other University staff. However, the Library has the core responsibility and expertise to support staff and students in the development of their own information literacy. But just as an information literate person is expected to demonstrate *“an awareness of how they gather, use, manage, synthesize and create information and data in an ethical manner and will have the information skills to do so effectively”* (SCONUL, 2011), so is the librarian charged with responsibility to impart such knowledge and skills. Robertson (2014) refer to the works of Brookes (2009) and Chawner (2008) who indicated that librarians depend on the support of their parent organizations for their own information literacy skills development. The University of Sydney (2014) for example provides the following in their policy statement as some form of support that can be accorded to the library staff:

- Staff development and training
- Resources – such as teaching spaces, technology.

- Teaching and learning planning processes.

2.2.5.2 Policies that Guide the Delivery of Information Literacy Skills

The policy guidelines help in students' information gathering technology use and critical thinking approaches. It can ensure that IL is amalgamated into Campus – wide academic mandates in the form of mission statements, strategic plans, syllabus templates and academic assessment measures. IFLA's guidelines on information literacy for lifelong learning (2006), advocates for the specific inclusion of IL policy statement in the overall library goal and vision statement. Observations made from different University library websites shows that libraries have customized IFLA's suggestions variable in their mission statements. While others offer specific standalone IL policies, others have integrated it into the wider library policy as part of their objectives.

2.2.5.3 ICT Facilities/Equipment and Information Literacy

Students today need the skills that will enable them to access and navigate the growing universe of information, to select appropriately the credible and reliable information they need, to read critically and think independently as they produce their own ideas, and then to use that refined information for their academic careers. Actually information is produced, maintained, archived and retrieved with new technologies. According to Ferguson (2003), ICT literacy as component of information literacy is that ability to use technologies such as internet, e-mail programs, word processors, presentation software, databases, digital videos, wireless communication extra, to access and use effectively and

efficiently information required for personal, educational, professional and public life success.

2.3 Challenges Encountered in Offering IL Programs

Challenges relating to the implementation of information literacy programmes vary from one institution to another. Amongst the predominant cited challenges in developing countries include: lack of qualified librarians (Wema, 2006), low IT skills, inadequate IL policy guidelines (Lorenzo and Dziuban, 2006), absence of real classes (Owusu-Ansah, 2004; Kimberly, 2000; Burkhardt, 2007), poor collaboration between librarians and faculties (Korobili and George, 2008; Oakleaf, 2011), mis-conception of the role IL amongst most internet savvy students (Bennett, 2007) amongst others.

2.4 Strategies for Improvement of IL

According to Rockman (2002) within the last several years, academic libraries have responded to a changing academic environment by becoming more involved with issues related to assessment, especially outcomes-based assessment. Ideally, libraries want to be able to show that the role of the library has a strong impact on campus mission and goals by strengthening the quality of a student's educational experience, empowering students with a renewed confidence in learning, contributing to student motivation and educational persistence, and providing a strong foundation for the retention and transferability of learning to any new experience. Much can be learned from the higher education assessment movement as libraries move into this arena (Pausch and Popp, 2003). Although some view the role of the library difficult to quantify (Hernon and Dugan,

2002), its contributions can best be defined and shaped by its connections to institutional goals and desired educational outcomes as suggested by Lindauer (2004).

Hernon and Dugan, (2002) propose that such outcomes-based assessment can be conducted independently as a single library unit, or as a central component of a larger campus-based assessment project such as the general education program. Either way, it is important to collect appropriate evidence to show the library's impact on campus by including the development of information literacy skills in course learning objectives in order to guide improvements, make informed decisions about instructional or curricular adjustments, and document change over a period of time. Ultimately, the outcome should be improving student learning.

Caravello et al. (2001) also propose the embedding of assessment approaches to examining student work within a course or discipline as another technique that can be useful for improving or advancing information competence goals. Such assessment can reveal if there are areas of student IL performance that require improvement, if students have retained and effectively applied knowledge and skills from course to course, and if instructional strategies and learning objectives are well aligned.

Some universities have taken bold IL assessment initiatives. The Appalachian State for example, cancels classes to conduct formal assessments of student learning (Mitchell and Viles, 2001), James Madison University has formal assessment days to test entering students, sophomores, and juniors (Sundre and Cameron, 1996). Based on a decade of experience, the Carrier Library at James Madison University has determined that

assessment efforts produce the most useful information and results particularly when the skills are measured through performance-based demonstrations as long as both the instruction and the assessment programs are based on clearly stated objectives, and the students have opportunities to practice skills before they are assessed (Palomba and Banta, 1999).

Works by different authors shows however, variations used for IL assessment. According to Kaplowitz (1986), most campuses tend to follow a less systematic method of assessment, relying on traditional methods of pre and post tests. Greer et al. (1991) and Kunkel et al. (1996) noted the predominant use undergraduate surveys, whereas Maughan (2002) observed the use of longitudinal surveys to measure the skills of students in selected academic departments. Dunn (2002) calls for additional research projects using both qualitative and quantitative assessment techniques so that libraries can learn more about the information-seeking behaviors of their students and their patterns for finding, evaluating, and using information. According to Dunn, such results can be used to make the case for including information literacy prominently in the general education core curriculum, courses in the major and support courses and to strengthen connections between course content with the ultimate goal to facilitate learning, and assisting students to develop into confident, self-directed, and independent lifelong learners. This study proposes strategies for improvement of IL in Huye campus library of University of Rwanda.

2.5 Chapter Summary

This chapter has examined the literature on information under different headings including: theoretical framework based on Information Literacy Competency Standards for Higher Education guided by ACRL model and seven faces model, general overview of information literacy and competency level of information literacy; the information literacy infrastructure such as programmes / activities put across to achieve information literacy; policies that guides the delivery of information literacy skills; ICT facilities/equipment that supports information literacy implementation; challenges encountered in offering IL programs; and finally strategies for improvement of IL programs. Each aspect of the subject discussed the information literacy among undergraduate students. The findings of this study will be added to the findings in the literature to arrive at a comprehensive structure.

CHAPTER THREE

RESEARCH METHODOLOGY

3.0 Introduction

The research methodology is a section that describes in detail how the study was conducted. This description enables the reader to evaluate the appropriateness of the method, the reliability, the validity of the results (APA, 2003).

This chapter describes the research design adopted in the study, study population, sample and sampling techniques, data collection instruments, validity and reliability of instruments, data collection procedure, data analysis and discussion instruments and ethical considerations.

3.1 Research Design

According to Nachmias and Nachmias (1996) research design is the programme that guides the investigator who collects, analyzes and interprets the observations. The design of a study defines the study type such as descriptive, correlation, semi-experimental, experimental, review, and sub-type (such as survey, retrospective, cross-sectional, and case study). It defines also the research question, hypotheses, variables and data collection methods.

In this study a survey within a case study research design was adopted. This design is suitable for this study because a survey is an attempt to collect data from members of a population in order to determine their current status with respect to one or more variables.

It is a self report study, which requires the collection of quantifiable information from the sample. What is to be underlined here is that in survey some persons must serve as respondents or informants (Babbie, 2001). Two methods of gathering data with surveys are questionnaires and interviews.

Case study is a method of studying elements of the social through comprehensive description and analysis of a single situation or case, for example, a detailed study of an individual, family, group, club, community, social institution, episode, event, or any other unit of social life organization (Ary et al., 2002; O'Leary, 2004). Creswell (2003) define case study as a study where the researcher explores in depth a program, an event, an activity, a process, or one or more individuals. In this study, the target group is the Huye Campus undergraduate students.

Both quantitative and qualitative strategies of data collection method were used in the study. Questionnaire, a quantitative approach, was used in collecting data from a large sample of Huye Campus students while the interview method, a qualitative approach, was used to obtain in-depth data from a small group of randomly chosen respondents in order to back up and verify the findings obtained through the questionnaire.

The quantitative data obtained from questionnaires was analyzed to provide descriptive statistics such as (mean, range, variance, standard deviation) in an effort to understand the current level of information literacy skills of Huye Campus undergraduate students, programmes/activities put across to provide information literacy for Huye Campus undergraduate students, skills possessed by the library staff to effectively deliver IL

activities, existing policies that guide the delivery of information literacy skills to Huye Campus library users, ICT facilities and equipment available to support IL activities at Huye Campus, challenges experienced in providing information literacy programmes for undergraduate students at Huye Campus and strategies that could be adopted for effective delivery of information literacy activities to Huye Campus library. The comparison of results from the qualitative and quantitative approach enabled the answers to the research questions.

3.2 Study Population

A population is defined as all members of any well-defined class of people, events, or objects about which the generalization is made (Ary et al., 2002; O’Leary, 2004). It is the entire set of relevant units of analysis, or data (Nachmias and Nachmias, 1996). Because of the inability to access every element of a population, data is gathered from a sample and the results are generalized to a broader population. This study was conducted at the University of Rwanda, Huye campus, in Huye District, Southern province, Rwanda and study population was the Huye Campus students and staff totaling to 11,000 and 541 respectively.

Huye Campus was purposively chosen because it is served by the Huye Campus Library that inherited the former National University of Rwanda Library staff and infrastructure (thus making it more equipped than the other campuses of the university). The large number of qualified librarians is also working at Huye Campus Library. In addition, the

library is largest in terms of information collection and currently serves all colleges except the College of Education.

3.2.1 Target Population

The target population is the entire aggregation of respondents that meet the designated set of criteria (Burns and Grove 1997). Target population is the population which a researcher wants to generalize the results of the study. The target population for this study was undergraduate students registered during academic year 2012-2013 in Huye Campus. Undergraduate students were chosen because they constitute the greater number of library users (88%) at the campus. The target population is shown in Table 3.1

Table 3.1: Target Population (Academic Year 2012-2013)

Huye Campus undergraduate Students	Year	Total
	1 st years	3870
	2 nd years	2794
	3 rd years	1851
	4 th years	1667
Total		10182
Huye Campus Staff (key informants)	Administrators	5
	Librarians	16
	Academic staff	384
Total		405

3.3 Sampling Technique

Sampling is the act, process, or technique of selecting an appropriate sample. According to Gay et al. (2006), sampling is the process of selecting a number of individuals (a sample) from a population (in this study, the Huye Campus undergraduate students) preferably in such a way that the individuals selected represent the larger group from which they were selected. This study used both stratified random sampling and purposive

sampling techniques. Stratified sampling involves dividing your population into various subgroups and then taking a simple random sample from each stratum (O’Leary, 2004). The stratified random sampling method was used to select undergraduate students. The year of study was used as the strata. Random sampling relies on random selection, or the process by which each element in the population has an equal chance of selection (O’Leary, 2004). Students from each year of study in each academic department had an equal chance to be selected. The students register served as the sample frame. Purposive sampling was used in selecting the key informants who were directly or indirectly involved in offering IL services and therefore considered to have the required information.

3.4 Sample Size

For this study, the probability sampling was used to determine the sample size for undergraduate students based on the Yamane’s formula (1967):

$$n = \frac{N}{1+N(e)^2}, \quad N = \text{number of the total population,}$$

Where $e = \pm 5\%$ and it is a level of precision and

n is the sample size which is the representative group.

$$n = \frac{10182}{1+10182(0.05)^2} \approx 377$$

The elevation factor is $\frac{N}{n} = \frac{10182}{377} \approx 27$

This meant that within 27 elements of population the research took 1 element to be involved in the sample. Table 3.2 shows the sample size of undergraduate students from each stratum while table 3.3 represents the total number by category of purposively sampled informants. Though few in number, Creswell (2008) asserts that the information given by key informants gives a study the right focus.

Table 3.2: The Following Table Shows Sample Frame for Undergraduate Students

Category		Population	Sample
Undergraduate Students	1 st years	3870	142
	2 nd years	2794	104
	3 rd years	1851	69
	4 th years	1667	62
Total		10182	377

Table 3.3: Sample Size of Key Informants

Category		Population	Purposive sample
Key Informants	Administrators	5	2
	Librarians	16	8
	Academic staff	384	10
Total		405	20

Usually, administrators are decision-makers, while librarians and faculty staff have complementary roles in facilitating the development of information literacy skills. Librarians have extensive training in information sources and how information is organized, as well as experience in accessing and evaluating information sources. They can guide students in the process of searching, retrieving and evaluating sources of information.

3.5 Data Collection Instruments

This study used questionnaires and interviews scheduled to collect data. From the sample of 377 undergraduate students who filled the questionnaires, the researcher purposively requested 11 of them to participate in face-to-face interviews. This ensured that the researcher get details that was not captured by the questionnaires. The researcher also interviewed the 20 key informants.

3.5.1 Questionnaire

The questionnaire was issued to Huye Campus undergraduate students. By using the questionnaire, the researcher was able to collect data from an adequate representation of the participants at a minimal cost. According to Nachmias and Nachmias (1996), questionnaires reduce biasing error because respondents are not influenced by researcher's characteristics or techniques. Questionnaires also provided a high degree of anonymity to the respondents. This is especially important when sensitive issues are involved such individuals IL competency levels. Questionnaires also gave the respondents adequate time to think about their answers and/or consult other sources thereby reducing the number of unfilled questions.

In the present study, the questions were constructed using indicators of the following concepts: IL skills, policy to guide IL, information seeking behavior, contribution of ICT to IL skills, IL challenges experienced (such as articulating an information need, locating information sources , evaluating information sources and effectively using acquired

information), and programs for IL training on how to access and use library information services and to develop the effective strategies to improve the user satisfaction.

The type of questionnaire was scaled items. This was chosen because it allowed the use of parametric statistical techniques when doing analysis, especially comparisons.

3.5.2 Face-to-Face Interviews

Face-to-face interviews were used to collect data from key informants. According to Lichtman (2010) cited by Butuk (2011) interviewing is a term used to describe a group of methods that permit the researcher to engage in a dialogue or conversation with the participant(s).

Interview conducted with key informants helped the researcher to collect supplementary information to those collected using questionnaire, and including spontaneous reactions.

The study used personal interview where respondent was comfortable, confident to provide desired information.

3.6 Validity and Reliability of Data Collection Instruments

According to Kimberlin and Winterstein (2008) Validity is defines the extent to which an instrument measures what it purports to measure. This involves ensuring that the instruments used in data collection are simple, correct, clear, measurable and appropriate for eliciting the desired answers to the questions raised. Reliability requires the researcher to ensure the viability of the instruments to provide repeatability and accuracy. Reliability represents an internal consistency of collected data.

In this study, the reliability of the questionnaire was tested using the following alpha of Cronbach formula $r_{tt} = \left(\frac{n}{n-1}\right) \frac{SD_t^2 - \sum(SD_i^2)}{SD_t^2}$, where: r_{tt} = alpha of Cronbach, n = the number of respondents to the questionnaire, SD_t^2 = the variance of the questionnaire scores, and $\sum(SD_i^2)$ the sum of the variances of item scores . After calculation, the internal consistency of the questionnaire was $\alpha = .96$. The alpha (α) of Cronbach is used to assess the reliability of the questionnaire by its internal consistency. This desired consistency (or reproducibility) of questionnaire scores is called reliability.

According to Streiner (2003) when alpha of Cronbach is $.90 > \alpha \geq .80$ it is a good coefficient, when alpha of Cronbach is $.80 > \alpha \geq .70$ it is to be acceptable , when alpha of Cronbach is $.70 > \alpha \geq .60$ it is questionable, when alpha of Cronbach is $.60 > \alpha \geq .50$ internal consistency of tools is poor. For this study an alpha of Cronbach is .90 was achieved implying a good coefficient and that the questionnaire used was reliable and all the questions were accepted. This technique for testing the reliability was appropriate as the most of the questions was constructed using a Likert scale (interval level).

The validity of collected data relies on items' content related validity (questions were constructed from indicators of research questions' variables) and on a lot taken to convincing to win the confidence of respondents; and before the questionnaire administration to the respondents, it had been tested on eleven (11) Huye Campus undergraduate students and gave valid results.

3.7 Data Collection Procedure

The researcher asked for an introduction letter from the Department of Library, Records Management and Information Studies, Moi University which was presented to the Deputy Vice- Chancellor (DVC) of the University of Rwanda and to the Huye Campus Director to get the research permit. The researcher personally administrated the questionnaires and conducted interviews and focus group interviewing.

3.8 Data Analysis

This study used statistical approach for data treatment and analysis including the estimation of internal reliability of questionnaires using alpha of Cronbach, estimation of frequencies, percentages, and means. The qualitative data was analyzed thematically and there after the imagine things were coded and quantified to easy quantitative analyses. The results data was analyzed descriptively for frequencies and means. The results obtained have been presented in form of tables and charts.

3.9 Ethical Considerations

Participation in the study was voluntary and an informed and signed consent was obtained from all participants. The participants were informed of all aspects deemed relevant to their decision to participate. All collected data have been treated in a way that protects the confidentiality and anonymity of the responds involved in the study. Also the research activities have been performed in an honestly manner. The results of this study will be disseminated to the so Huye Campus community not just to make them aware of

their status in terms of IL activities, but hopeful their uptake of proposed corrective actions.

3.10 Chapter Summary

The chapter above discusses research methodology structure and concerns the following relevant elements. First, it presents the participants to the research specifying: inclusion and exclusion criteria, sample and sampling techniques and sample size. Second, it discusses instruments used in data collection, data analysis, and data presentation. Third, procedure is presented to ensure how data will be reached. And forth, ethical considerations are highlighted in order to refer to code of conduct that a researcher has to be judged on when accomplishing his or her activity.

CHAPTER FOUR

DATA PRESENTATION, ANALYSIS, AND INTERPRETATION

4.0 Introduction

The data presented, analyzed and interpreted in this chapter are based on findings from the questionnaire distributed to students and from the interview conducted with Key informants (librarians, deans, and administrators). The study employed mainly quantitative approach of data collection supported by qualitative approach. The qualitative data was first analyzed thematically based on the frequently recurring themes drawn from the respondents and later quantified. All the data was finally subjected to descriptive analysis. Data from both questionnaires and interviews were integrated and presented as per the following research questions:

- What is the current competency level of information literacy skills of Huye Campus undergraduate students?
- Which IL programmes/activities are offered at Huye Campus and how are they executed?
- What IL knowledge and skills do the library staff have?
- What policies, ICT facilities and equipment are used in the delivery of information literacy skills to Huye Campus library?
- What bottlenecks are experienced in the provision information literacy programmes for undergraduate students at Huye Campus?

- Which strategies could be adopted for effective delivery of information literacy activities at Huye Campus library?

4.1 Response Rate

A response rate in a survey research refers to the number of people who answered the survey divided by the number of people in the sample. It is usually expressed in the form of a percentage.

4.1.1 Undergraduate Students

A total of 377 questionnaires were returned dully filled by undergraduate students giving a response rate of 100% as shown in Table 4.1.

Table 4.1: Response Rate of Students

Category	Population	Sample size	Response rate	Percentage of Response rate (%)
First years	3870	142	142	100
Second years	2794	104	104	100
Third years	1851	69	69	100
Fourth years	1667	62	62	100
Total	10182	377	377	100

Exploring the antecedents and consequences of response rates, Holbrook, Krosnick and Pfent (2007) found that surveys with shorter interviews, less invasive, easier to implement respondent selection techniques yielded higher response rates. For the present study, it can be added that this was the first study in the subject matter at Huye Campus.

This may have drawn the interest of the respondents and hence their willing to participate in the research.

Curtin (1996) showed that surveys with lower response rates (near 20%) yielded more accurate measurements than did surveys with higher response rates (near 60 or 70%), but, a higher response rate is preferable because the missing data is not random. There is no satisfactory statistical solution to deal with missing data that may not be at random (Altman and Bland, 2007).

4.1.2 Key Informants

The response rate for the key informants was 95% as shown in Table 4.2

Table 4.2: Response Rate of Key Informants

Category	Population	Sample size	Response rate	Percentage
Administrators	5	2	1	50
Librarians	16	8	8	100
Academic staff	384	10	10	100
Total	405	20	19	95

Getting a high response rate (>80%) from a small, random sample is considered preferable to a low response rate from a large sample (Evans, 1991). Holbrook, Krosnick and Pfent (2007) found that making appointments and allowing respondent-initiated contact (for appointments and interviews) is not associated with increased response rates, but for this study, key informants had a particular interest for this kind of study at Huye Campus. The key informants were met in their offices and the interviews lasted not more than one hour.

4.2 The Current IL Competencies of Undergraduate Students of Huye Campus

The first research question of set out to establish the current competency level of information literacy skills of Huye Campus undergraduate students. To achieve this, the students were required to respond to 40 multiple items to determine their ability to:

- Determine the nature and extent of the information needed;
- Access needed information effectively and efficiently;
- Evaluate information and its sources critically and incorporates selected information into their knowledge base and value system;
- Individually or as members of a group, use information effectively to accomplish a specific purpose;
- Understand many of the economic, legal, and social issues surrounding the use of information and access and use information ethically and legally;
- Creation new knowledge;
- Articulate knowledge and skills transferred from the existing knowledge and I create the new one; and
- Find a larger context in information to create wisdom.
- Use IT in the various IL phases/stages

The Information Literacy competencies are based on five standards and twenty-two performance indicators as defined by ACRL standard and Bruces' integration of IT in the Seven Faces of Information Literacy. This study presented these competencies one by one as are assessed by items scaled from 1 to 4 (1= strongly disagree, 2=Disagree, 3=

agree, 4=strongly agree). (Appendix B, section B.1, question 1.). At analysis, 1-2 were treated as *Disagree* and 3-4 as *agree*.

The first 31 items are based on five standards and twenty-two performance indicators as presented by ACRL (2007) and the 2 items are related to new knowledge creation and management, and wisdom creation; the last 7 items are related to the use of IT in the various IL phases/stages

Item 1-5 assessed if Huye campus students have the capacity to determine the nature and extent of the information needed; items 6 -7 assessed if they access needed information effectively and efficiently; items 8-21 assessed if they are able to evaluate information and its sources critically and incorporate selected information into their knowledge base and value system; items 22-27 assessed if individually or as members of a group, they use information effectively to accomplish a specific purpose; items 28-30 assessed if they understand the economic, legal, and social issues surrounding the use of information and access and use information ethically and legally; and items 31-33 assessed if they have ability to create new knowledge, ability of new knowledge management and extension, and ability of finding context in information to create wisdom. Items 34- 40 assessed students' ability to use IT in the various phases of IL.

Reliability test was conducted to see whether these questions were related to each other or not. The second question was tailored to establish if Huye campus undergraduate students knew the importance of IL skills.

4.2.1 Competency 1: Capacity to Determine the Nature and Extent of the Information Needed

The first competency determined the students' proficiency in articulating the nature and extent of the information they needed using 5 multiple items. The results are presented in table 4.3.

Table 4.3: Students Capacity to Determine the nature and Extent of the Information Needed (N=377)

No	Items	Agree	%	Disagree	%
1.	Recognize the need to increase my general knowledge about the topic and select reliable sources to gain a general overview of the topic.	261	69.23	116	30.77
2.	Define or modify a topic to achieve a manageable focus and refine the topic based on discoveries through the research process.	330	87.53	47	12.47
3.	Identify key concepts and terms that best describe a research topic.	329	87.27	48	12.73
4.	Identify the value and differences of potential resources in a variety of formats.	363	96.29	14	3.71
5.	Identify the purpose and audience of potential resources, and use appropriate sources for the type of research project being undertaken.	326	86.48	51	13.52
MEAN		322	85.41	55	14.59

*An agreement to a proposition means that the respondents acknowledge possessing a concerned IL skills and a disagreement to a proposition means that the respondents acknowledge not possessing a concerned IL.

Overall, the results show that majority of the students $\bar{x} = 322$ (85.41%) had the knowledge and skills required in articulating the nature and extent of information needed. 330 (87.53%) indicated that they were able to define or modify a topic to achieve a manageable focus and refine a topic based on discoveries through the research process, 329 (87.27) identify key concepts and terms that best describe a research topic, 363 (96.29%) identify the value and differences of potential resources in a variety of formats

and 326 (86.48%) identify the purpose and audience of potential resources, and use appropriate sources for the type of research project being undertaken. Although the number of those who indicated competency in the ability to recognize the need to increase the general knowledge about the topic and select reliable sources to gain a general overview of the topic was lower than the others, 261 (69.23%) this was still over 50% of the students.

The difference between those who reported as having the various skills was ranged between 69.23% and 96.28%. On average of 322 out of 377 students attested to having that capacity. This means that respondents are able to evaluate research sources critically and therefore to examine and compare information from various sources in order to evaluate reliability, validity, accuracy, authority, timeliness, and point of view or bias. However, the results of interviews with deans and heads of departments revealed that the majority of students accept sources without evaluating them for these different aspects because they miss IL skills. For Richland College Librarians (2008) such students skip the initial exploratory phase of research. They stay with a topic exactly as initially conceived and they select random, convenient sources and they tend to use any available source without understanding its purpose or value.

If the respondents have the capacity to determine the nature and extent of the information needed, according to American Library Association (2006), this implies that they recognize the need for accurate information and the value of general information sources. They understand what a focused topic is and how to shape one by broadening and

narrowing ideas, identify appropriate subject headings and keywords, choose best format for a given purpose, and they understand nature and use of potential sources. Therefore, they would have the ability to recognize the need to increase their general knowledge about the topic, select reliable sources to gain a general overview of the topic, define or modify a topic to achieve a manageable focus, and refine the topic based on discoveries through the research process. But, deans and heads of departments, stated that first and second years students and some third and fourth years students skip the initial exploratory phase of research, choose topics for research that are too broad or too narrow. According to Richland College Librarians (2008) the missing skills on understanding what a focused topic is and how to shape one by broadening and narrowing ideas results in such individuals not being able to define or modify a topic to achieve a manageable focus nor to refine the topic based on discoveries through the research process.

4.2.2 Competency 2: Accessing Needed Information Effectively and Efficiently

The second assessment of students' IL competency tested their proficiency in accessing needed information effectively and efficiently, and it was assessed by items 6 and 7. Their response is shown in Table 4.4

Table 4.4: Students' Ability to Accessing Needed Information Effectively and Efficiently (N=377)

No	Items	Agree	%	Disagree	%
6.	Identify keywords, synonyms, and phrases to search for the information needed, and understand that keyword searching can be used to retrieve subject headings and use this method to locate them.	231	61.27	146	38.73
7.	Use various search systems to retrieve information in a variety of formats and recognize location information in the library catalog.	305	80.90	72	19.10
MEAN		268	71.09	109	28.91

*An agreement to a proposition means that the respondents acknowledge possessing a concerned IL skills and a disagreement to a proposition means that the respondents acknowledge not possessing a concerned IL

The students were asked if they identify keywords, synonyms, and phrases to search for the information needed, and if they understood that keyword searching can be used to retrieve subject headings and use this method to locate them. In both cases, the students responded positively, 231 (61.27%) and 305 (80.9%) respectively. The results above reveal that a great number of undergraduate students of Huye Campus acknowledged having the capacity to access needed information effectively and efficiently; the percentages of agreements ranged from 61.27% to 80.90%. The average of agreements was 268 out of 377 students confirmed having the ability to effectively and efficiently access the required information.

Even if the results reveal that a majority of undergraduate students of Huye Campus acknowledged having the required competency to access needed information effectively and efficiently, for this competency undergraduate students of Huye Campus have shown different patterns for item 6 and item 7 in the view of the key informants.

Six out of eight librarians interviewed indicated that only students in third and fourth year of study were able to access information effectively and efficiently and this observation is shared by eight among ten faculties' deans and heads of departments interviewed. The third and fourth year students are able to generate keywords and synonyms to conduct an electronic search, identify keywords, synonyms, and phrases to search for information needed, use keyword searching as well as subject headings in retrieving information, interpret and use bibliographic records effectively, as well as recognize the location of information from the library catalog with ease.

“According my experience, only students in third and fourth year are able to access information effectively and efficiently” (R2).

“Students in third and fourth years are able to generate keywords and synonyms; they are so able to conduct an electronic search, they can recognize the location of information from the library catalog with ease” (R4).

“Students in third and fourth years are able to use key word searching subject headings, interpret and use bibliographic records, which is not the case for the students in first year of study” (R5).

According to American Library Association (2006) this ability implies assessing search results for relevancy and modifying search strategy when necessary, understanding purpose of documentation formats and how to apply them, recording the elements required for citing a source. This means that only third and fourth year students are able

to consider the relevancy of search results and modify search strategy if results do not satisfy currency, authority, or relevancy criteria, and also know what elements are required for documenting different types of sources, to record all pertinent citation information at the appropriate time. Such competency may be too advanced for the first and second year students particularly considering that majority did not have good library skills prior to joining the university.

Richland College Librarians (2008) noted that accessing needed information effectively and efficiently requires also the use of various classification systems to locate information sources within the library, the documentation of all cited sources and the use of standard documentation style, something that students in lower levels of study may only be introduced to.

4.2.3 Competency 3: Evaluation of Information and its Sources Critically and Incorporation of Selected Information into their Knowledge Base and Value System

The third competency was assessed by item from 8 to 21. The students were asked to rate the extent to which they agree or disagree with the competency relating to their ability to evaluate information and its sources critically and incorporate selected information into their knowledge base and value system. The results are summarized in Table 4.5.

Table 4.5: Students Ability to Critically Evaluate Information and its Sources and Incorporate of Selected Information into their Knowledge Base and Value System (N=377)

No	Items	Agree	%	Disagree	%
8.	Read the text and select main ideas, restate textual concepts in my own words and select data accurately, and identify verbatim material that can be then appropriately quoted.	189	50.13	188	49.87
9.	Examine and compare information from various sources in order to evaluate reliability, validity, accuracy, authority, timeliness, and point of view or bias.	177	46.95	200	53.05
10.	Analyze the structure and logic of supporting arguments or methods.	195	51.72	182	48.28
11.	Recognize prejudice, deception, or manipulation.	187	49.60	190	50.40
12.	Recognize the cultural, physical, or other context within which the information was created and understand the impact of context on interpreting the information.	185	49	192	51
13.	Recognize interrelationships among concepts and combine them into potentially useful primary statements with supporting evidence.	178	47.21	199	52.79
14.	Extend initial synthesis, when possible, at a higher level of abstraction to construct new hypotheses that may require additional information.	191	50.66	186	49.34
15.	Utilize computer and other technologies (e.g. spreadsheets, databases, multimedia, and audio or visual equipment) for studying the interaction of ideas and other phenomena.	187	49.60	190	50.40
16.	Determine whether information satisfies the research or other information need.	192	51	185	49
17.	Use consciously selected criteria to determine whether the information contradicts or verifies information used from other sources	182	48.28	195	51.72
18.	Draw conclusions based upon information gathered, test theories with discipline-appropriate techniques (e.g., simulators, experiments).	190	50.40	187	49.60
19.	Determine probable accuracy by questioning the source of the data, the limitations of the information gathering tools or strategies, and the reasonableness of the conclusions.	182	48.28	195	51.72
20.	Integrate new information with previous information or knowledge.	181	48.01	196	51.99
21.	Select information that provides evidence for the topic.	195	51.72	182	48.28
MEAN		187	49.60	190	50.40

*An agreement to a proposition means that the respondents acknowledge possessing a concerned IL skills and a disagreement to a proposition means that the respondents acknowledge not possessing a concerned IL

Compared to the previous competency levels tested, the results in Table 4.5 show that over half $\bar{x} = 190$ (50.4%) of the undergraduate students at Huye Campus did not exhibit sufficient competency in critical evaluation of information and its sources and in

incorporating of selected information into their knowledge base and value system. The difference however between those who did (49.6%) and those who did not (50.4%) was insignificant (0.8%).

Only 5 out of the 21 indicators testing this skill registered = >50% students respond positively to having these skills. These areas are: ability to read the text and select main ideas, restate textual concepts in my own words and select data accurately, and identify verbatim material that can be then appropriately quoted 189 (50.15%); Analyze the structure and logic of supporting arguments or methods 195 (51.72%); Extend initial synthesis, when possible, at a higher level of abstraction to construct new hypotheses that may require additional information 191 (50.66%); Determine whether information satisfies the research or other information need 192 (51%); Draw conclusions based upon information gathered, test theories with discipline-appropriate techniques (e.g., simulators, experiments) 190 (50.4%); Select information that provides evidence for the topic 195 (51.72%). The areas recording the least levels of these skills in relation were ability to examine and compare information from various sources in order to evaluate reliability, validity, accuracy, authority, timeliness, and point of view or bias 200 (53.05%) and Recognize interrelationships among concepts and combine them into potentially useful primary statements with supporting evidence 199 (52.79%).

The results from this question relating to evaluation of information and its sources critically and incorporation of selected information into their knowledge base and value system may be interpreted to mean that undergraduate students of Huye Campus either

do not understand the meaning implied in these skills or they do not know how to execute them. Referring to Chakravarty (2008), the competency relating to evaluation of information and its sources critically and incorporation of selected information into their knowledge base and value system implies the ability to assess quality, quantity and relevance of retrieved information, to assess the quality of the retrieved information for bias, currency and authority, and to revise research strategies.

Referring to American Library Association (2000), this comparative low scorings by the Huye Campus undergraduate students may be taken to imply that the students are not be able to summarize the main ideas to be extracted from the information gathered, nor to articulate and apply initial criteria for evaluating both the information and its sources. Consequently, the students will fail to synthesize the main ideas to construct new concepts, to compare news knowledge with prior knowledge, to determine the value added or the contradictory or the other unique characteristics of information. They will not be able to determine whether the initial query should be revised.

4.2.4 Competency 4: Individually or as Members of a Group, use Information Effectively to Accomplish a Specific Purpose

The fourth competency was assessed by 7 multiple items. The students were asked to rate the extent to which they agree or disagree if they have the ability to use information effectively to accomplish a specific purpose individually or as members of a group and the results were shown in table 4.6

Table 4.6: Students Ability to use of Information Effectively in order to Accomplish a Specific Purpose (N=377)

No	Items	Agree	%	Disagree	%
22	Organize the content in a manner that supports the purposes and format of the product or performance e.g. outlines, drafts, and storyboards.	167	44.30	210	55.70
23	Articulate knowledge and skills transferred from prior experiences to planning and creating the product or performance.	179	47.48	198	52.52
24	When I have reached information I integrate the new and prior information, including quotations and paraphrasing, in a manner that supports the purposes of the product or performance, and manipulate digital text, images, and data, as needed, transferring them from their original locations and formats to a new context.	162	42.97	215	57.03
25	I usually maintain a journal or log of activities related to the information seeking, evaluating, and communicating process, and reflect on past successes, failures, and alternative strategies.	155	41.12	222	58.88
26	To communicate the information I choose a communication medium and format that best supports the purposes of the product or performance and the intended audience.	161	42.71	216	57.29
27	To communicate product or performances, I range information technology applications in creating the product or performance, incorporate principles of design and communicate clearly and with a style that supports the purposes of the intended audience.	168	44.56	209	55.44
MEAN		165	43.86	212	58.14

*An agreement to a proposition means that the respondents acknowledge possessing a concerned IL skills and a disagreement to a proposition means that the respondents acknowledge not possessing a concerned IL

The results in Table 4.6 shows that majority of the students $\bar{x}=212(58.14\%)$ do not have sufficient ability to use information effectively to accomplish a specific purpose.

When they are asked if they are able to organize the content in a manner that supports the purposes and format of the product or performance, the majority of the students disagreed 210 (55.7). They also acknowledged low competencies in articulating knowledge and skills transferred from prior experiences to planning and creating the product or performance 198 (52.52%) and in their ability to integrate the new and prior information in manner that supports the purposes of the product or performance 215 (57.03%). These

three questions show that students were inadequate in their ability to apply new and prior information to the planning and creation of a particular product or performance.

About the ability to maintain a journal or log of activities related to the information seeking, evaluating, and communicating process, and reflect on past successes, failures, and alternative strategies, 155 (41.12%) agreed and 222 (58.88) disagreed. These results indicate that the majority of students do not reflect nor learn from their previous search experiences. When asked if they were able to communicate the information and to choose a communication medium and format that best supports the purposes of the product or performance and the intended audience, 161 (42.71%) indicated that they were able to while 216 (57.29%) indicated that they were not able to. Students were also asked if when communicating product or performances, they range information technology applications in creating the product or performance, incorporate principles of design and communicate clearly and with a style that supports the purposes of the intended audience, 168 (44.56%) agreed while 209 (55.44%) disagreed. These results show that students are not trained to communicate the product or performance effectively to others.

According to Ranaweera (2008), information literacy skills empower the people with the critical skills which will help them to become independent lifelong learners. These skills will enable people to apply their knowledge from the familiar environment to the unfamiliar where they achieve the particular target or purpose. Once students have found, read, and evaluated their articles for instance, they are expected to incorporate them into their paper coherently and consistently. This involves organization, writing, and critical

thinking. This is a time for intensive process that involves planning, outlining, writing and revising, and finally, submitting the paper for a grade. Thus, undergraduate students at Huye Campus miss the ability to use of information effectively to accomplish a specific purpose individually or as members of a group as seen in these findings.

4.2.5 Competency 5: Understand the Economic, Legal, and Social Issues Surrounding the Use of Information and Access Ethically and Legally

The fifth competency assessed students' comprehension of the economic, legal, and social issues surrounding information access and use using 3 multiple items. Their response is presented in table 4.7

Table 4.7: Students' Capacity to Understand the Economic, Social, Legal and Ethical Issues Surrounding Information and Access and Use (N=377)

No	Items	Number of students agreeing	%	Number of students disagreeing	%
28	I'm informed and follow laws, regulations, institutional policies, and etiquette related to the access and use of information resources	58	15.38	319	84.62
39	I select an appropriate documentation style and use it consistently to cite sources and I post permission granted notices as needed for copyrighted material.	76	20.16	301	79.84
30	I preserve, store, and reuse, record and archive information for future use	21	5.57	356	94.43
MEAN		52	13.79	325	86.21

In all the three indicators used to assess the awareness, comprehension, and application of ethical concerns of information use, majority of the students responded negatively implying a dearth of competency in this aspect. Each used item recorded >79% of

students disagreeing that they had this skills. Majority of respondents are not informed about these laws, regulations, and institutional policies. According to the American Library Association (2000), information concerning privacy and security in both the print and electronic environments, relate to aspects such as free vs. fee-based access to information, censorship and freedom of speech, intellectual property, copyright, and fair use of copyrighted material.

Additionally, the Library Association correctly warns that such deficiency in knowledge and skill would imply that the students will not be able to select an appropriate documentation style nor use it consistently to cite sources, or to post permission granted notices, as needed for copyrighted material. This implies that the undergraduate students at Huye campus seem are not able to preserve the integrity of information resources; equipment, systems and facilities of legally obtained, stored, and disseminated text, data, images, or sounds.

4.2.6 Competency six: Students Ability to Articulate Knowledge Transferred and Create New Knowledge

To understand Huye undergraduate students' ability to manage and create new knowledge, the students were requested to respond to three multiple items testing their ability to articulate knowledge and skills transferred from the existing knowledge and I create the new one, choose a communication medium and format that best supports the purposes and the intended audience and find a larger context in information to create wisdom. Their response is presented in Table 4.8

Table 4.8: Students Ability to Articulate Knowledge Transferred and Create New Knowledge (N=377)

No	Items	Agree	%	Disagree	%
31	I articulate knowledge and skills transferred from the existing knowledge and I create the new one.	0	0	377	100
32	I choose a communication medium and format that best supports the purposes and the intended audience.	58	5.38	319	84.62
33	I find a larger context in information to create wisdom.	1	0.27	376	99.73
MEAN		20	5.31	357	96.69

*An agreement to a proposition means that the respondents acknowledge possessing a concerned IL skills and a disagreement to a proposition means that the respondents acknowledge not possessing a concerned IL

In response to the first item that sort to establish student' ability to articulate the knowledge and skills transferred from the existing knowledge and to create the new one, none of the students acknowledged having any of this skills. Their ability to choose a communication medium and format that best supports the purposes and the intended audience was equally low with only 58 (5.38%) positively agreeing to having this skill. Similar low proficiency levels in students' ability to find a larger context in information to create wisdom is recorded with only one student claiming to have this ability.

The students' competency level of this IL skill appeared deplorable with the percentages their competency level across the three areas tested ranging from 0% to 5.38%. The Huye campus undergraduate students fail to articulate knowledge and skills transferred from the existing knowledge and to create the new one. This implies that the students cannot synthesize acquired information, build knowledge on it to create new knowledge and finally wisdom, the highest in the pyramid of information.

4.2.7 Competency seven: Students' Ability to Use Information Technology in the Various Information Literacy Process

Informed the recent emphasis on IT integration in IL activities, the last competency was structured to assess the students' ability to apply IT in the various phases of IL as defined in Bruces' Seven Faces of Information Literacy model. Their response is captured in Table 4.9

Table 4.9: Students' Ability to use IT in the Various Phases of IL (N=377)

No	Competency	Agree	%	Disagree	%
34	I create effective and efficient search queries and apply appropriate vocabulary, navigate hyperlinks when retrieving information and socially communicating with others	322	85.41	55	14.59
35	I select digital collections and web sites based on their characteristics	268	71.09	109	28.91
36	I use problem solving and decision making in selecting a range of digital tools based on their effectiveness and efficiency	187	49.60	190	50.40
37	I exercise control in the management of information, making decisions on the quality, reliability of the information.	58	5.38	319	84.62
38	I use personal perspectives with knowledge gained based on critical thinking to determine whether or not to integrate digital information related to a specific task	52	13.79	325	86.21
39	I apply the information technology in integrating personal knowledge, experience, creative insight to develop new knowledge and novel solution to problems/tasks	0	0	337	100
40	I apply information technology to add personal quality values and ethics combined with obtained knowledge and information obtained in sharing the information wisely for the benefit of others	1	0.27	376	99.69
MEAN		137	36.33	240	63.67

The results in table 4.9 show that students acknowledged their ability to create effective and efficient search queries and apply appropriate vocabulary, navigate hyperlinks when retrieving information and socially communicating with others 322 (85.41%). But also, the results (in the same table 4.9) show that majority of the students $\bar{x}=250$ (63.67%) do not have sufficient ability to use information technology in the various Information Literacy process. Most significant area of deficiency was in applying the information technology in integrating personal knowledge, experience, creative insight to develop new knowledge and novel solution to problems/tasks 0 (0%), applying information technology to add personal quality values and ethics combined with obtained knowledge and information obtained in sharing the information wisely for the benefit of others 1 (0.27%), using personal perspectives with knowledge gained based on critical thinking to determine whether or not to integrate digital information related to a specific task 52 (13.79%), and exercise of control in the management of information, making decisions on the quality, reliability of the information 58 (15.38%). They also acknowledged low competencies in use problem solving and decision making in selecting a range of digital tools based on their effectiveness and efficiency 187 (49.60%). The ability to select digital collections and web sites based on their characteristics is medium 268 (71.09%).

The results above reveal that Huye undergraduate students are facing problems to use information technology in the various Information Literacy process and this must be improved. Bruce (2002) established the relationship between technology and information in addition to defining core literacies. According to Ferguson (2003) ICT literacy as component of information literacy is that ability to use technologies such as internet, e-

mail programs, word processors, presentation software, databases, digital videos, wireless communication extra, to access and use effectively and efficiently information required for personal, educational, professional and public life success. Pérez (2014) stated that in a digital world, information literacy requires users to have the skills to use information and communication technologies and their applications to access and create information.

4.2.8 Students Perception of the Importance of Information Literacy

As a secondary question to research question one, the study sort to understand the students' opinions about the importance of IL competency. This was informed by research findings that posit an individuals' perception as an antecedent of their self-assessment or esteem which in turn greatly influence their opinion of how well they can accomplish something (here in considered as IL competency) (Brown and Marshall, 2006). To achieve this, the students were required to rate on a scale from 1 (not important) to 4 (very important) the extent to which each of the following five primary skills associated with IL competencies is in achieving a successful outcome (defined as students' satisfaction with their work) to a research project or course assignment: Their responses are shown in 4.10

Table 4.10: Students Perception of the Importance of Information Literacy (N=377)

No	Statement about Importance of IL	Agree	%	Disagree	%
1	Evaluate and think critically about information	370	98.14	7	1.86
2	Use information ethically and legally	371	98.41	6	1.59
3	Identify and address information need	370	98.14	7	1.86
4	Access information effectively and efficiently	368	97.61	9	2.39
5	Use information effectively and efficiently	370	98.14	7	1.86
MEAN		370	98.14	7	1.86

*An agreement to a proposition means that the student acknowledged the importance of IL skill in achieving a successful a research project or course assignment and a disagreement to a proposition means that the student does not acknowledge its importance.

As can be seen from Table 4.10 most $\bar{x}= 370$ of the undergraduate students of Huye Campus acknowledge the importance of IL in enhancing information access and use thus enhancing their research project or course assignment. However, although this results show that the students are aware of the significance of IL in their lifelong learning, this does not seem to translate to their IL competency levels as presented earlier in Tables from Table 4.3 - Table 4.9. In many areas the students' IL competency levels were inadequate. This implies that the students need to be supported if their competency levels are to be improved.

4.3 IL Activities Offered at Huye Campus for Undergraduate Students

The second research question was aimed at establishing the activities offered at Huye Campus. The students were expected to confirm the presence or absence of 9 commonly offered IL activities identified in the literature. Their response is shown in Table 4.11.

Table 4.11: Information Literacy Activities Offered at Huye Campus (N=377)

IL Activities offered to support undergraduate	yes there is	%	No there is not	%
Online tutorials teaching these information literacy skills	214	56.77	163	43.23
Course-related or integrated instruction	189	50.13	188	49.87
Library use-orientation	308	81.70	69	18.30
Exhibitions	213	56.50	164	43.50
Information Literacy courses in curriculum by the librarian in collaboration with the faculties	0	0	377	100
Faculty develop these skills through curricular learning outcomes	0	0	377	100
One-on-one consultation with librarians	149	39.52	228	60.48
Information Literacy Workshops planned for undergraduate students	139	36.87	238	63.13
Informational literacy instructional sessions to support specific classes	198	52.52	179	47.48

The students identified 7 categories of IL activities in place at Huye campus for undergraduate students. In none of these 7 was there a consensus amongst the students about their existence. Thus, Library use-orientation seems largely put in place as it confirmed by 308 (81.7%) respondents, followed by online tutorials teaching and students and exhibitions as confirmed by 214 (56.77%) and 213 (56.5%) students respectfully. The low application of one-on-one consultation with librarians and the Information Literacy Workshops was attributed to insufficient number and availability of qualified staff who can train the library users as explained by one librarian interviewed:

“The number of the qualified library staff is insufficient and this makes it difficult our availability to train library users”, (R₁).

Don and Melissa (2011) survey findings conducted at Florida State University found that students who attended IL workshops felt more confident in their searching skills after attending the workshops. This implies that Huye Campus students are denied an important IL activity that would play a significant part in enhancing their IL skills.

Similarly, in contrast to the findings that show that successful IL programmes are those that involve collaboration between the librarian and the faculties (Oakleaf, 2001; Dun, 2002 and Rockman, 2002) no such activity existed in Huye Campus. This result may also imply that IL skills courses are not integrated in curricula.

All librarians the 8librarians confirmed the existence of library use-orientation, informational literacy instructional, and one-on-one consultation as IL activities provided across the campus. They explained that the Library use –orientation aimed at making the students aware of the library facilities, information resources and services available. They noted though that these activities are not considered to be enough to equip students with the necessary IL skills for their lifelong learning especially in this digital era as one respondent stated:

“at the beginning of each academic year, we help undergraduate first years student by library use orientation, we inform them about e-resources that our library possesses and how to use them. When some students have particular problems, we help them individually. But, we consider that this

information is not enough to equip students with the necessary IL skills for their studies and future live” (R2)

While the administrator interviewed confirmed the use of library use-orientation, IL online tutorials, exhibitions, informational literacy instructional sessions, course-related or integrated instruction, one-on-one consultation with librarians and Information Literacy Workshops as the IL activities offered, he noted that information literacy is not embedded throughout the curriculum. Thus reaffirming that At Huye Campus the cooperation between the library and faculties in order to develop and operate the IL programme successfully is not yet well implemented.

Surprisingly though, majority of the Deans and Heads of Departments (7/10), were not aware of the IL activities offered at Huye campus for undergraduate students. The 3 who seemed to be aware of these IL activities did not seem to understand well the approaches used to deliver IL. They confused, for example, an integrated course of IL in their curriculum with the ICT and Studies Skills course offered in the campus. Furthermore they considered the library orientation offered during the first week to new students as not being enough to equip the students with sufficient skills to use the library resources as they thought that it did not cover all aspects of IL skills as one respondent stated:

“really I do have sufficient information about what IL activities offered, (...), at the beginning of each academic year, librarians help students in library use orientation and they are paid for but I think that this short training is not enough for all needed IL skills”(R3).

These findings show that there is a great gap between the needed activities and those put in place at Huye campus. Amongst the core activities missing include: online tutorials information literacy skills teaching, course-related or integrated instruction Information Literacy courses in curriculum by the librarians in collaboration with the faculties, and curricular learning outcomes developed by faculties.

Kingori (2013) reminds us of the importance of information literacy activities to not only the users but also the providers of library services. One of the objectives of such activities, he notes, is to empower users to be self-reliant in accessing library resources so that users are independent in information seeking behaviour. The literature shows that this is done more effectively when a number of IL activities are offered to the students. While Huye campus offers a number of such activities, this is not done uniformly across the schools. Although the study did not establish which schools were offered what, the findings certainly imply that some of the undergraduate students are not privileged to have essential skills which could likely impact their academic performance.

4.4 IL Competency of the Library Staff

The third research question was tailored to identify the skills that library staff possesses in delivery of IL activities. The Table 4.12a presents the library staff self-assessment of their IL competency.

Table 4.12 a: Library Staff Self-Assessment of their IL Competency Level (N=8)

Skills	Agree	% of Agree	Disagree	% of Disagree
Accurately define information needs	8	100	0	0
Critically evaluate information	6	75	2	25
Understand economic issues associated with information use	6	75	2	25
Understand legal issues associated with information use	5	62.5	3	37.5
Understand ethical issues associated with information use	5	62.5	3	37.5
Select appropriate investigative methods	6	75	2	25
Reconcile personal values and knowledge with new information	6	75	2	25
MEAN	6	75	2	25

*The agreement to a proposition means that the respondents acknowledge that library staffs possess the concerned skills in delivery of information and the disagreement to a proposition means that the respondents do not acknowledge their existing.

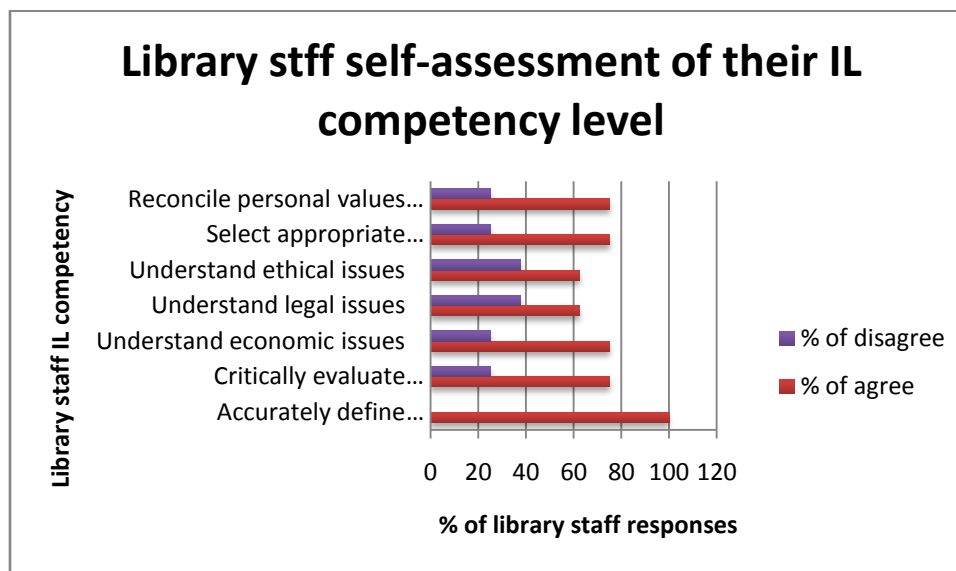


Figure 4.1: Library Self-Assessment of IL Skills

Overall, more than half $\bar{x}=6$ (75 %) of the staff rated themselves as having the prerequisite IL skills to deliver IL activities. All the 8 interviewed librarians indicated that they were proficient in accurately defining information needs. 6 of the 10 confirmed their proficiency in critically evaluating information, economic issues associated with information access and use, selecting appropriate investigative methods, and reconciling personal values and knowledge with new information. On the other hand, 5 of the ten interviewed indicated that they were vast with legal and ethical issues associated with information access and use. Other additional knowledge and skills areas that library staff listed as having include: communication skills 8 (100%), presentation skills 8 (100%), promotion skills 6 (75%), teaching skills 4 (50%), instructional design skills 4 (50%) and administrative skills 2 (25%).

In contrast however, Administrators, Deans and Heads of Departments were of the view that staffs did not possess enough skills required to enable them execute IL information as shown in Table 4.12b.

Table 4.12 B: Administrators, Deans and Heads of Departments' Opinions of IL Library Staff Competency (N=11)

Skills	Agree	% of Agree	Disagree	% of Disagree
Accurately define information needs	5	45.45	6	54.55
Critically evaluate information	4	36.36	7	63.64
Understand economic issues	5	45.45	6	54.55
Understand legal issues associated with information access and use	4	36.36	7	63.64
Understand ethical issues associated with information access and use	4	36.36	7	63.64
Select appropriate investigative methods	5	45.45	6	54.55
Reconcile personal values and knowledge with new information	5	45.45	6	54.55
MEAN	5	45.45	6	54.55

Overall, less than half $\bar{x}=5$ (45.45%) of the administrators, deans and head of departments rated library staff IL competency levels as inadequate. Of these, 6 out of 11 were of the opinion that the library staff IL skills were wanting in ability to accurately define information needs, select appropriate investigative methods and reconcile personal values and knowledge with new information. 7 of the 11 on the other hand rated them low on their competency to critically evaluate information, and understand legal and ethical issues associated with information access and use.

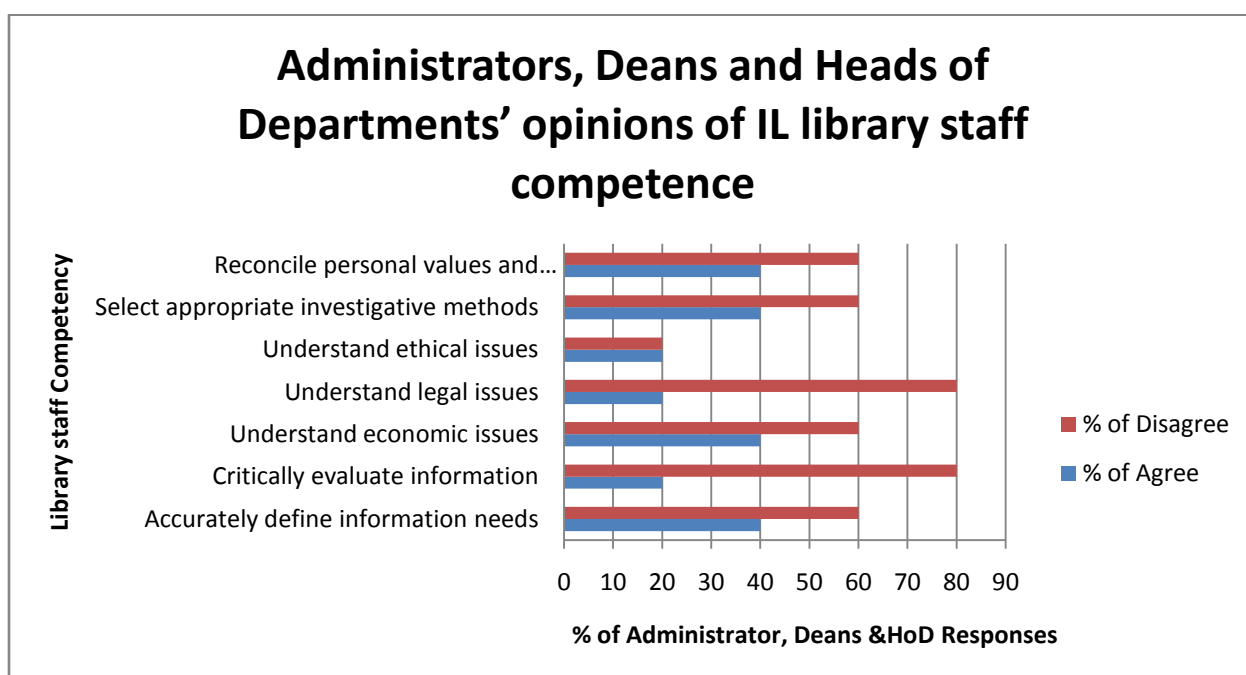


Figure 4.2: Administrator, Deans and HoDs' opinions of IL Library Staff Competence

According to American Library Association (2008) a librarian may have the following skills: administrative skills, assessment and evaluation skills, communication skills, curriculum knowledge, information literacy integration skills, instructional design skills, leadership skills, planning skills, presentation skills, promotion skills, subject expertise skills and teaching skills.

The Canadian Association of Research Libraries (CARL, 2010) adds CARL librarians including: foundational knowledge, interpersonal skills, leadership and management, collections development, information literacy, research and contributions to the profession, and information technology skills as core of competencies for 21st Century librarian. Delivery of IL activities goes beyond the immediate IL skills. It includes administrative, managerial, financial, advocacy and communication skills amongst

others. This therefore implies that knowledge and skills of the library staff of Huye campus are inadequately for the delivery of a wide range of IL activities expected of a 21st Century librarian.

4.5 The Existing Policies, ICT Facilities and other Supportive Equipment

The fourth research question sought to examine the policies, ICT facilities and equipment used in the delivery of information literacy skills to Huye Campus library. This question was addressed in two parts: the first looked at the existing policies guiding the delivery of IL skills and the second examine the ICT facilities and other equipment used in the delivery of information literacy skills to Huye Campus library.

4.5.1 The Existing Policies Guiding the Delivery of IL Skills

This question was asked to key informants only. All the 8 librarians indicated that there are instructions governing the library activities but these guidelines were not specific to delivery of IL skills at Huye Campus as stated by the two following librarians.

“they are instructions governing the library activities but these guidelines which are not specific to delivery of IL skills” (R4)

“in general, instructions governing the library activities exist” (R5).

The administrator stated that policies guiding the delivery of IL skills at Huye Campus existed albeit not explicitly documented. He further noted the need for articulating IL with the curriculum, to enhance collaboration between faculty staff and librarians and to improve a pedagogy that incorporates appropriate ICT as he stated:

“Policies guiding the delivery of IL skills at Huye Campus exist although indirectly, IL should be articulated with the curriculum, collaboration between faculty staff and librarians should be possible and a pedagogy that incorporates appropriate ICT should be developed” (R19).

All the Deans and Heads of Departments interviewed stated that they did not know if the policies guiding the delivery of IL skills at Huye Campus existed or not. Instead, they suggested that librarians and faculty staff must meet, discuss and propose policies to be adopted for guiding the delivery of IL skills at Huye Campus. Among Deans and Heads of Departments, three of them suggest a compensatory common module of IL in all undergraduate programmes.

“Existing policies guiding the delivery of IL skills at Huye Campus, I don’t know, but this may be done in collaboration between faculty and librarians”(R15).

“About the policies guiding the delivery of IL skills at Huye Campus, I do not know if they exist. These policies must be discussed by faculty and librarians and adopted thereafter; I think that a compensatory common module of IL in all undergraduate programmes, is needed” (R16).

“I don’t know if there are policies guiding the delivery of IL skills at Huye Campus. This job should be done in collaboration between faculty and librarians; they can for example propose a common module of IL in all undergraduate programmes” (R17).

“Since there isn’t collaboration between faculties and library, to adopt policies guiding the delivery of IL will be difficult. For the moment, a common module of IL in all undergraduate programmes is needed” (R18).

According to Lorenzo and Dziuban (2006), absence of an IL policy can affect students’ information gathering, technology use and critical thinking approaches. Pausch and Popp (2003) gave requirements for an Information Literacy (IL) programme and these can help for IL policies establishment: *a mission* (consistent with that of university and reflecting the role of user groups), *clear goals and objectives* (developed with input from various user groups), *planning* (with a budget, institutional support, and adequate staffing and staff development), *administrative support* (to identify required resources and assign responsibility for IL), *articulation with the curriculum*, (emphasis on student-centered learning, and institution-wide integration), *collaboration* (between faculty staff and librarians to garner support for the programme and integrate IL concepts and disciplinary content), *pedagogy* (that incorporates appropriate ICT and links to ongoing coursework), *staff* (who are adequate in number and have appropriate expertise and experience), *outreach activities* (to communicate the value of the IL programme through a variety of channels, addressing the needs of all user groups), and *assessment and evaluation* (activities to inform further improvement of the programme, using a variety of outcome measures such as portfolio assessment, oral defense, quizzes, essays, direct observation, anecdotal, peer and self-review, and experience).

These essential elements were found missing at Huye Campus. In the light of the above, for a sound IL policy, Huye Campus will be required to incorporate these elements into a documented policy that is enacted and amalgamated into Huye campus- wide academic mandates in form of mission statements, strategic plans, syllabus templates and academic assessment measures.

4.5.2 ICT Facilities and other Equipment Used in the Delivery of Information Literacy Skills

Sivakumaren et al. (2011) group ICT facilities into three categories:

- ICT hardware such as computers, printers, laptops, scanners and photocopiers;
- ICT based software such as library automation software, digital software, e-learning software and digitization software; and
- Various types of electronic resources and ICT enabled technologies such as Barcode Technology, Smart card Technology, RFID Technology, Video Conference Technology, and Internet Technology, E-Books, E-Journals, Full text Databases, Bibliographic databases, CD-ROM databases, ETD, DVD and Library Consortium.

Kamani and Dinesh (2010) identify the following as key characteristics of an ICT era: e-books, e-journals, e-theses databases, e-groups, digital archives, Library networks, Library Websites, Web OPACs, Virtual conferences, Virtual help desks, Web exhibitions, Bulletin boards and FAQs.

To determine the ICT infrastructural framework available at Huye campus, all respondents were asked to list the ICT facilities and equipment, if any, available for the supports information literacy activities for undergraduate students at Huye Campus and to propose what they considered to be essential ICT facilities and equipment for information literacy. 350 (92.8%) of students identified the following ICT facilities and equipment available at Huye Campus for enhancement of undergraduate students IL skills:

- Computer laboratories and internet connection
- Wireless connection for using their laptops
- Library website and OPAC

The students suggested that the number of computers should be increased and librarians should be more available for help. Overall they thought that the IL infrastructure was inadequate when compared to the increasing numbers of students. They noted further that some of these facilities were not reliable (such as the like internet and wireless connection) and that the qualified trainers were not enough.

“We face a great problem with an insufficient number of computers (...) librarians, sometimes are not available for help; internet and wireless connection are not reliable”.(Student₁)

“The increasing number of students may be in correlation with the increasing of the IL means, computers, internet connectivity reliability, the qualified librarians and trainers”.(Student₂)

“I think that IL facilities must be improved at Huye Campus such as the numbers of computers in comparison with the increasing number of students, availability of librarians, qualification of trainers, and reliability of internet connectivity, among others”.(Student₃)

The key informants including the librarians, administrator, deans and heads of departments listed the following as the ICT facilities and equipment in place at Huye Campus: computer labs, library websites, internet and wireless connections, e- resources subscription, and team of qualified trainers.

From the responses of both groups of participants, it is clear that Huye Campus has, though not extensive, some basic ICT infrastructure resources and facilities. Predominantly identified resources included ICT based software and various types of electronic resources. These were however insufficient in comparison with the increasing number of students. The implication of this is that this inadequacy in the ICT facilities may limit the range of IL activities that the library could be able to offer which would subsequently affect the information literacy knowledge and skills provided to the students.

4.6 The Challenges Experienced by Huye Campus in Executing IL Activities

The fifth research question aimed at establishing the challenges experienced by Huye Campus while implementing IL activities. The challenges enumerated by respondents can be classified into the following categories:

4.6.1 Insufficient IL Resources

All the 19 key informants and 377 (100%) students were opined that IL resources are insufficient in comparison with the increasing number of students. They reported that the computer labs were insufficient as well as the time allocated for computers use, internet connectivity was unreliable, and that the library staff were few and amongst them, unqualified. Hepworth and Wema (2006) indicate that a lack of technology and qualified staff has made it difficult to develop meaningful information literacy programs and projects that would lead towards optimal exploitation of the available information resources. This was found to be true for Huye Campus. Most librarians already had a full load of responsibilities, and could therefore not give information literacy teaching and training the attention needed it deserves; much less find the time to work on wider and longer-term strategic considerations.

4.6.2 Insufficient IL Skills of Students

All participants, the informants and students inclusive stated that students did not have enough IL skills. According to key informants students have low level of reading culture. Majority of the respondents were of the opinion that the information literacy concepts introduced early in the student's life through a one-off orientation programme was not always fully appreciated by majority of the students at this early stage. The key informants listed in addition other challenges experienced by Huye Campus undergraduate students in executing IL activities as:

- Use of only information available in syllabus by some students,

- Limited reading space, and
- Weak sensitization of IL, evidenced by the large number of students who do not know how library is organized nor its functioning.

4.6.3 Low Level of Collaboration between Teaching Staff and Library Staff

According to all informants and 368 (97.6%) students, there is a low level of IL collaboration between the teaching and library staff. They cited for example that Information literacy is not embedded throughout the curriculum. This collaboration status contradicts research reports that show that for successful delivery of IL and its assessment, collaboration between the Librarians and academic staff is crucial particularly in higher institutions of learning (Korobili and George, 2008; Oakleaf, 2011).

4.7 Participants Suggestions of Strategies for Improving Undergraduate Students' Skills at Huye Campus

The last research objective aimed at identifying strategies that could be adopted for effective delivery of information literacy activities at Huye Campus library. Both the students and informants were required to identify the strategies that they thought would be appropriate for Huye campus from a list of predefined strategies adopted from a set of strategies proposed by London Metropolitan University (2011) and Brancolini et al. (1996) and also supported by the larger literature on subject matter. In addition the respondents were also requested to identify any other strategies not listed.

Their participants' responses are shown in table 4.13

Table 4.13: Participants' Proposed Strategies for Improving of Undergraduate Students IL Skills (N=377) and (N=19)

PROPOSED IL STRATEGIES	Students				Informants			
	YES	%	NO	%	YES	%	NO	%
▪ Offer an introduction to research course or incorporate learning segments into existing courses	304	80.64	73	19.36	18	95	1	5
▪ Offer tutorials teaching advanced searching skills in specific resources or for a discipline-specific purpose	330	87.53	47	12.47	17	89.4	2	10.6
▪ Exploit opportunities for embedding information literacy set out in the Review of Undergraduate Education	304	80.64	73	19.36	18	95	1	5
▪ Embed the teaching of information literacy skills in the undergraduate and postgraduate taught curricula	288	76.39	89	23.61	19	100	0	0
▪ Raise awareness within the University of the importance of embedded information literacy teaching for students	308	81.70	69	18.30	18	95	1	5
▪ Develop measures for assessing the impact of information literacy teaching on student achievement	298	79.05	79	20.95	19	100	0	0
▪ Develop a strategy for providing support to researchers in terms of the teaching of information literacy skills	314	83.29	63	16.71	18	95	1	5
▪ Contribute to producing information literate graduates	278	73.74	99	26.26	17	89.4	2	10.6
▪ Utilized current and emerging learning technologies to enhance and support student information literacy learning	334	88.59	43	11.41	19	100	0	0
▪ Develop an information literacy section of the library website	321	85.15	56	14.85	19	100	0	0

*An agreement to a proposition means that the respondents considered the proposed IL strategy appropriate for Huye Campus and a disagreement to a proposition means that the respondents did not consider the strategy appropriate.

All the proposed strategies received approval of more than $\frac{3}{4}$ of the students with exception of the strategy of contributing to producing information literate graduates that contribute to producing information literate graduates that received 278 (73.74%) approval. The approval of each of the strategies was: embedding the teaching of information literacy skills in the undergraduate taught curricula 288 (76.39%), raising awareness within the University of the importance of embedded information literacy training for students 308 (81.7%) agreed, developing measures for assessing the impact of information literacy teaching on student achievement 298 (79.05%), developing a strategy for providing support to researchers in terms of the teaching of information literacy skills 314 (83.29%), utilizing current and emerging learning technologies to enhance and support student information literacy learning 334 (88.59%), developing an information literacy section of the Library website 321 (85.15%), offering a for-credit introduction to research course or incorporate learning segments into existing courses 304 (80.64%), and offering tutorial teaching on advanced searching skills in specific resources or for a discipline-specific purpose 330 (87.53%). Asked to list any other methods that can increase information literacy skills and/or ways librarians can assist them to improve their research skills, the students suggested that the library organize training, update books on shelves, increase the number of staff, increase number of working hours (that is library opening hours) and increase rooms for reading. From their list of other additional strategies, it can be deduced that the students are not all together very clear with what are IL strategies. The above results reveal that the majority of students approve all the

proposed strategies, but given that they do not have enough information about IL activities or programmes needed, they seem to be not able to propose other strategies.

All the proposed strategies received also approval of more than 89.4% of the key informants. The approval of each of the strategies was: embedding the teaching of information literacy skills in the undergraduate taught curricula 19 (100%), developing measures for assessing the impact of information literacy teaching on student achievement 19 (100%), utilizing current and emerging learning technologies to enhance and support student information literacy learning 19 (100%), developing an information literacy section of the Library website 19 (100%), developing a strategy for providing support to researchers in terms of the teaching of information literacy skills 19 (95%), exploit of opportunities for embedding information literacy set out in the review of undergraduate education 18 (95%), offering a for-credit introduction to research course or incorporate learning segments into existing courses 18 (95%), raising awareness within the University of the importance of embedded information literacy training for students 18 (95%) agreed, contribution to producing information literate graduates 17 (89.4%), and offering tutorial teaching on advanced searching skills in specific resources or for a discipline-specific purpose 17 (89.4%). The above results reveal that key informants have a high and positive appreciation about proposed strategies, and they are more very clear than students with what are IL strategies. Asked to list any other methods that can increase information literacy skills, the librarians, Administrators, deans of faculties and head of departments proposed the following additional strategies:

- Organization of regularly seminars and IL workshops for faculty staffs and students,
- Inviting librarians and students to participate in ICT and Communication Studies, and Research Methods courses and to discuss about specific IL issues, and
- Sensitize the academic community on library services.

4.8 Chapter Summary

This chapter has presented findings to the six research questions of the study which were: What the current competency level of information literacy skills of Huye Campus undergraduate students, IL programmes/activities are offered at Huye Campus, IL competency of the library staff, infrastructure that supports the delivery of information literacy skills at Huye Campus, challenges/bottlenecks experienced in the provision information literacy programmes for undergraduate students at Huye Campus and strategies for improving IL skills of the Huye Campus undergraduate students. The results of both the students and key informants were integrated. Statistical descriptive analysis resulting in frequencies, statistical means, and percentages was used in analyzing the quantitative data drawn from the questionnaire and the closed end questions in the interview schedule which was presented in tables and figures. Qualitative data drawn from both open-ended questions in the questionnaire and the interview schedule were thematically analyzed and presented in terms of narrative descriptions and excerpts. The next chapter will examine the research methodology used in the study.

CHAPTER FIVE

SUMMARY OF FINDINGS, CONCLUSION AND RECOMMENDATIONS

5.0 Introduction

The aim of this study was to investigate information literacy skills among undergraduate students of Huye Campus with the view to proposing strategies to improve the information literacy programmes offered by the campus. Interview schedules and questionnaires were used in collecting data from 19 informants and 377 undergraduate students respectfully. This chapter provides a summary of the findings based on the following research questions of the study:

1. What is the current competency level of information literacy skills of Huye Campus undergraduate students?
2. Which IL programmes/activities are offered at Huye Campus and how are they executed?
3. What IL knowledge and skills do the library staff have?
4. What policies, ICT facilities and equipment are used in the delivery of information literacy skills to Huye Campus library?
5. What bottlenecks are experienced in the provision information literacy programmes for undergraduate students at Huye Campus?
6. Which strategies could be adopted for effective delivery of information literacy activities at Huye Campus library?

5.1 Summary of Findings

5.1.1 The competency level of IL among undergraduate students of Huye Campus

A 40 multiple items of different IL skills drawn from five standards and twenty-two IL performance indicators defined by ACRL standard and from Bruces' integration of IT in the Seven Faces of Information Literacy was used to determine the undergraduate students' ability to: [1] determine the nature and extent of the information needed, [2] access needed information effectively and efficiently, [3] evaluate information and its sources critically and incorporate selected information into their knowledge base and value system, [4] individually or as members of a group, use information effectively to accomplish a specific purpose, [5] understand the economic, social legal and ethical issues surrounding information access and use, [6] articulate knowledge and skills transferred from the existing knowledge to create new knowledge, and find a larger context in information to create wisdom, and [7] use information technology in various phases of IL activities. A summary of these of seven competency levels of IL skills among undergraduate students of Huye campus is shown in table 5.1.

Table 5.1: Summary of Competency Level of Information Literacy Skills among Undergraduate Students of Huye Campus (N=377)

No	Competency	Mean of agree	%	Mean of Disagree	%
1.	The capacity to determine the nature and extent of the information needed	322	85.41	55	14.59
2.	Accessing needed information effectively and efficiently	268	71.09	109	28.91
3.	Evaluation of information and its sources critically and incorporation of selected information into their knowledge base and value system	187	49.60	190	50.40
4.	Individually or as members of a group, use of information effectively to accomplish a specific purpose	165	43.86	212	58.14
5.	Understand the economic, social, legal and ethical issues surrounding information and access and use	52	13.79	325	86.21
6.	Articulate knowledge and skills transferred from the existing knowledge to create new knowledge, and find a larger context in information to create wisdom	20	5.31	357	96.69
7	Ability to use IT in the various phases of IL	137	36.33	240	63.67
MEAN		164	43.5	213	56.5

The findings established that IL competency level of the undergraduate students of Huye Campus was below average. As seen in table 5.1, on average, majority of the students $\bar{x}=213(56.5\%)$ admitted that they did not have sufficient IL knowledge and skills compared to $\bar{x}=164(43.5\%)$ who thought that they did. Only in the first two competency areas did the students' appear to be modestly knowledgeable and skilled. These are the ability to determine the nature and extent of the information needed and the ability to access needed information effectively and efficiently. With reference to the first competency that determined their ability to determine the nature and extent of information required compared, the results revealed that majority $\bar{x}=322(85.41\%)$ of the

students claimed to have this prerequisite skill compared to $\bar{x}= 55$ (14.59%) of those who did not. The range of students who reported having the five knowledge and skills associated with this first competency ranged between 69.23% and 96.29% (Table 4.3).

Further, the study established that an average of 268 (71.09%) considered themselves as having the ability to access needed information effectively and efficiently (competency two). However, this ability appeared to vary amongst students in various levels of studies. According to the key informants, only the third and fourth years group of students demonstrated a capacity to generate keywords, synonyms and phrases to conduct an electronic search, interpret bibliographic records and as well as use them effectively, and recognize the location of information in the library with ease using the library catalog (4.2.2. R₄ and R₅).

The study also established that over half $\bar{x}=190$ (50.4%) of the undergraduate students at Huye Campus reported as having inadequate competency in critical evaluation of information and its sources and in incorporating of selected information into their knowledge base and value system – competency three (Table 4.5 & Table 5.1). The difference between those who indicated as having this skill and those who indicated as not having was nevertheless very minimal (3 students or $\bar{x} = 0.8\%$). Only 5 out of the 21 indicators testing this skill registered =>50% students responding positively to having these skills.

Similar low competency levels were reported in students' general ability to, individually or as members of a group, use information effectively to accomplish a specific purpose

(Table 4.6). The students were found to be inadequate in their ability to apply new and prior information to the planning and creation of a particular product or performance, reflect nor learn from their previous search experiences, communicate results of a product or performance effectively to others (4.2.4) all which are important outcome indicators of a student's to use information effectively to accomplish a specific purpose associated with competency four.

In the same vein, the students reported low competency levels in choosing communication medium and format that best supports the purposes of the product, performance or intended audience associated with understand the economic, social legal and ethical issues surrounding information access and use 161 (42.71%) indicated that they were able to while 216 (57.29%) indicated that they were not able to. While 209 (55.44%) students admitted their inadequacy in knowledge and skills of incorporating principles of design and communicating clearly and with a style that supports the purposes of the intended audience. Low competency levels were reported in students' general ability to articulate knowledge and skills transferred from the existing knowledge to create new knowledge, and find a larger context in information to create wisdom 20 (5.31%). Also the results show that majority of students 240 (63.67%) do not have sufficient ability to use information technology in the various Information Literacy process (Table 4.9).

In sum, the IL competency level of the undergraduate students decrease from one level to other in a funnel shape like as shown in Table 5.1. As we moved from competency one

to five as defined by ACRL standards (2007) to higher and more complex abilities such as generating new knowledge and thereby creating wisdom the more the students there were students recording their incompetency. Although there is still debate on potential influence of self-evaluation or perception on an individual's self-esteem, the correlation cannot be ignored. Consequently as a secondary question to the second research question, the study attempted to establish the Huye Campus undergraduate students' perception of the role of IL skills in heightening successful completion an academic task. The findings indicated that most $\bar{x}=98.04\%$ of the students recognized the potential influence IL skill in enhancing information access and use thus increasing their chance in successfully accomplishing a research project or course assignment (Table 4.10).

5.1.2 IL Activities Offered at Huye Campus and how they are Executed

Regarding IL activities offered at the Huye Campus, the findings established that there were seven basic forms of IL activities offered across the campus (Table 4.11). However, these activities varied from school to school. Library use-orientation, online tutorials teaching and students and exhibitions were the three activities identified by majority of the students as largely offered. Other library activities offered include: online tutorials teaching these information literacy skills, Course-related or integrated instruction, exhibitions, and informational literacy instructional sessions to support specific classes. One-on-one consultation and the Information Literacy Workshops were seldom offered across all schools due to inadequate library staff. The followings were evidently missing:

- online tutorials information literacy skills teaching,

- course-related or integrated instruction Information Literacy courses in curriculum by the librarians in collaboration with the faculties, and
- curricular learning outcomes developed by faculties.

Findings further showed that there is a great gap between what has been advanced in the literature as key IL activities deemed necessary in higher institutions of learning and the activities put in place at Huye campus.

5.1.3 Competencies of Library Staff to Offer of IL Activities

Both the library staff and the other informants (administrator, deans and heads of department) opinion of the IL competency levels of library was sought. A summary of their assessment is presented in Fig. 5.1.

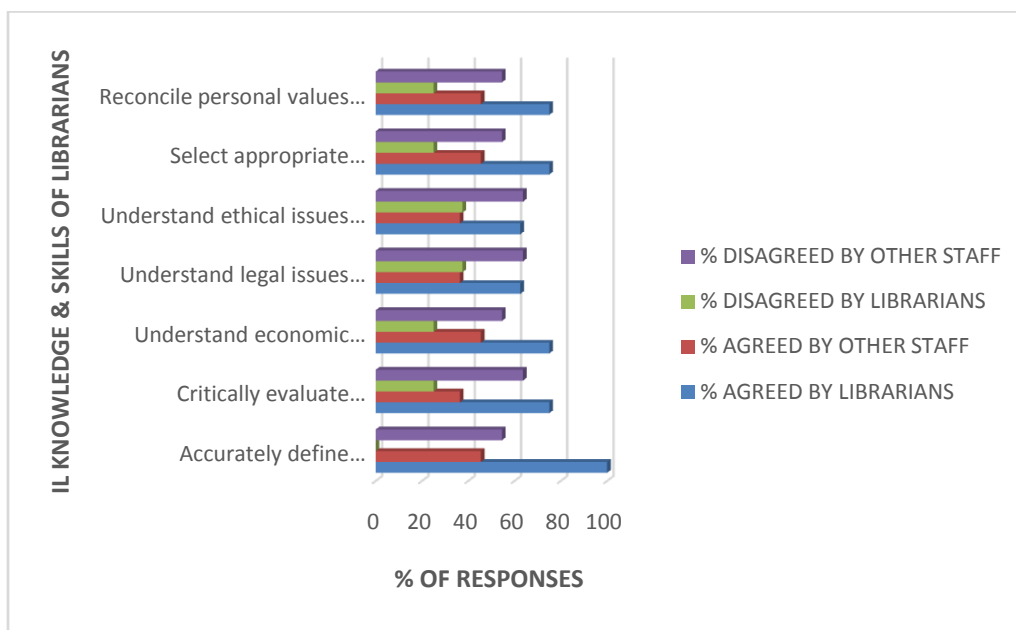


Figure 5.1: Summary of IL Competency Level of Library Staff

Overall, all of the library staff rated themselves as having the prerequisite IL skills to deliver IL activities (Fig 5.1; Table 4.12a). In all the seven indicators used to assess their

IL skills, three quota (6 out of 8) of the librarians interviewed acknowledged having the skills. In addition, all the 8 reported having communication and presentation skills, 4teaching and instructional design skills while only 2 had administrative skills (4.4). Administrators, Deans and Heads of Departments had contrary opinion of the IL competency of librarians in all the seven indicators (Fig 5.1; Table 4.12b). Overall majority of them were of the opinion that the librarians IL knowledge and skills were inadequate across all the seven indicators tested.

5.1.4 Existing Policies, ICT Facilities and other Equipment that Supports the Delivery of IL Skills to Huye Campus Library Users

The success of IL programmes is a factor of the IL infrastructure available. The fourth research question thus examined the policies guiding the delivery of IL skills and the ICT facilities and other equipment used in the delivery of information literacy skills at Huye Campus. The findings revealed that although general instructions governing the library activities existed, policies governing IL delivery was not explicitly documented (4.5.1R₁₉). IL was not amalgamated into Huye campus-wide academic mandates: not in form of mission statements, strategic plans, syllabus templates nor academic assessment measures.

Nevertheless findings established that Huye Campus has ICT facilities and equipment that can be used to support information literacy activities. These include, internet and wireless connection, ICT laboratories, Online Public Access Catalogue (OPAC), a range of e- resources, and a team of qualified albeit limited. The ICT infrastructure facilities, ICT based software and electronic resources were considered to be significantly

inadequate in comparison with the increasing number of students. Reliability and dependency on some of these resources could not be guaranteed (4.5.2. *Student₁-student₃*)

5.1.5 Challenges Experienced by Undergraduate Students in Executing IL Activities

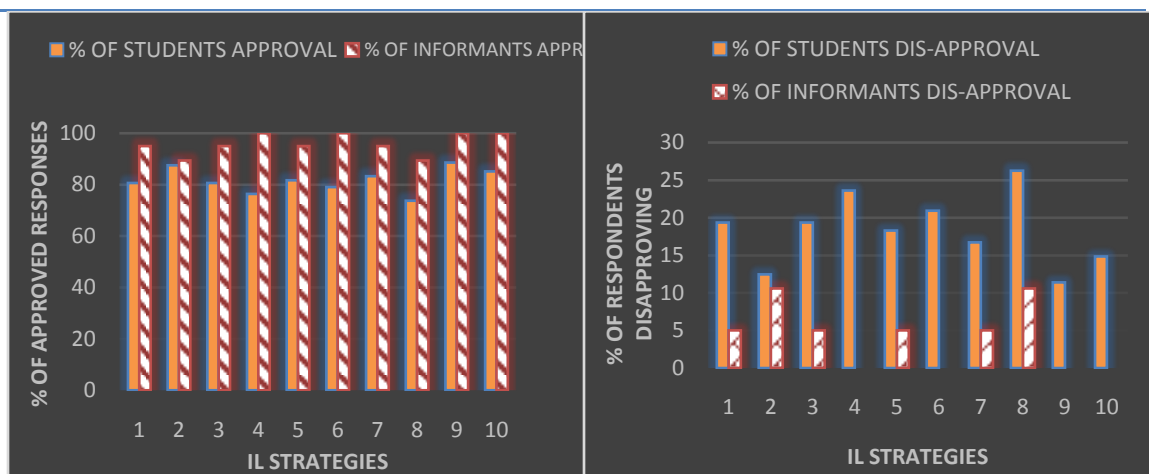
The results revealed that IL resources were largely insufficient in comparison to the increasing number of students. The computer labs were insufficient, and so were time allocated for computer use. Internet and wireless connectivity was reported to be unreliable, and library staff were few (4.6.1). The widely used one-off orientation programme offered to the students in their first year of learning was and the sanitization of IL programme was found wanting leading to poor use of the library and over dependency on limited instructional materials by the students (4.6.2). The absence of the integration of Information literacy in the curriculum for supporting student learning via collaborative curriculum development between library and academic staff was prominently notable (4.6.3).

5.1.6 Participants' proposed Strategies for Effective Delivery of Information Literacy Activities to Huye Campus

Both undergraduate students and informants were required to indicate their approval or disapproval of a predefined list of proposed IL strategies adopted from a set of strategies proposed by London Metropolitan University (2011) and Brancolini et al. (1996). The strategies included: Offering an introduction to research course or incorporate learning segments into existing courses, offering tutorials teaching advanced searching skills in specific resources or for a discipline-specific purpose, exploiting opportunities for embedding information literacy set out in the review of undergraduate education,

embedding the teaching of information literacy skills in the undergraduate and postgraduate taught curricula, raising awareness within the University of the importance of embedded information literacy teaching for students, developing measures for assessing the impact of information literacy teaching on student achievement, developing a strategy for providing support to researchers in terms of the teaching of information literacy skills, contributing to producing information literate graduates, utilizing current and emerging learning technologies to enhance and support student information literacy learning, and developing an information literacy section of the library website.

As seen in the summary of their responses (Fig. 5.2a) drawn from data presented in Table 4.13, all listed strategies received high approval of both the students and the informants (>75%) with the exception of proposed strategy of developing an IL strategy that contributes to producing literate graduates which missed the margin of ¾ % approval response by a mere 1%. In all listed strategies the informants' approval rates were higher than the students'. The informants in addition proposed organization of regularly seminars and IL workshops for faculty staffs and students, invitation of librarians and students to participate in ICT and Communication Studies, and Research Methods courses and discussions on specific IL issues, and sensitization of library services to the academic community (4.7)



1. Offer an introduction to research course or Incorporate learning segments into existing courses
2. Offer tutorials teaching advanced searching skills in specific resources or for a discipline-specific purpose
3. Exploit opportunities for embedding information literacy set out in the Review of Undergraduate Education
4. Embed the teaching of information literacy skills in the undergraduate and postgraduate taught curricula
5. Raise awareness within the University of the Importance of embedded information literacy teaching for students

6. Develop measures for assessing the impact of Information literacy teaching on student achievement
7. Develop a strategy for providing support to researchers in terms of the teaching of information literacy skills
8. Contribute to producing information literate Graduates
9. Utilized current and emerging learning technologies to enhance and support student information literacy learning
10. Develop an information literacy section of the Library Website

% OF STUDENTS APPROVAL	81	88	81	76	82	79	83	74	89	85
% OF INFORMANTS APPROVAL	95	89	95	100	95	100	95	89	100	100
% OF STUDENTS DIS-APPROVAL	19	12	19	24	18	21	17	26	11	15
% OF INFORMANTS DIS-APPROVAL	5	11	5	0	5	0	5	11	0	0

Figure 5.2a: Participants' approval of proposed strategies

Figure 5.2b: Participants' disapproval of proposed strategies

However, an inverse of responses against each of the proposed strategies was observed as seen in Fig. 5.2b. The students registered more disapproval responses compared to the informants. In both cases nonetheless, the disapproval rates was less than 26%.

5.2 Conclusion

The Information literacy skills of undergraduate students of Huye Campus are not well developed. With the exception of two IL competencies, that is the ability to determine the nature and extent of the information needed and the ability to access needed information effectively and efficiently, majority of the students were inadequate in the areas of evaluating information and its sources critically and incorporating selected information into their knowledge base and value system, using information effectively to accomplish a specific purpose, understanding and applying the economic, social, legal and ethical considerations while accessing and using information, articulate knowledge and skills transferred from the existing knowledge to create new knowledge, and finding a larger context in information to create wisdom, and in efficiently applying IT in the various IL activities.

In addition, Huye Campus IL activities were generally below the standard expectations of higher institutions of learning. Conspicuously missing activities included online tutorials information literacy skills teaching, course-related or integrated instruction Information Literacy courses in curriculum by the librarians in collaboration with the faculties, and curricular learning outcomes developed by faculties. Contrary to expectations, even the seven IL activities offered were not uniformly offered across all schools due to inadequate library staff.

Although the library staff considers themselves as having the prerequisite IL knowledge and skills, the administrator, deans and heads of departments shared a very different

opinion. They generally rated the IL competency levels of librarians as inadequate. While this study did not verify the validity of either opinions (librarians' self-assessment and the other informants' rating), this cannot be totally ruled out given the inadequate levels of IL activities they are offering and the inadequacies in the students' competencies. This implies that the library staff needs to enhance their skills just as much as the students if they are to sufficiently impart the same knowledge and skills to others.

Huye Campus has a range of facilities such as ICT facilities and equipment that can be used to support information literacy activities including, internet and wireless connection, ICT laboratories, Online Public Access Catalogue (OPAC), a range of e-resources, and a team of qualified librarians, the IL infrastructure is by far still limited for effective support of IL activities. Notable was the absence of policies that govern directly the delivery of IL even though the library had general guidelines on library use. The consequences, though not directly, not assessed, can be seen in the general low levels of IL competencies of the students and the relatively few IL activities offered in the campus thus confirming the second study assumption that the existing infrastructure for IL at Huye Campus is inadequate and this has derailed students' IL development. Without an explicit amalgamated into Huye campus-wide academic mandates in form of mission statements, strategic plans, syllabus templates and academic assessment measures the general commitment and support that the library may require to comprehensively provide a full scale IL program will continue to suffer setbacks.

The campus faces a myriad of challenges in the efforts to provide IL programmes. These ranged from insufficient resources required to support the IL activities in comparison with the increasing number of students, nonexistence of substantively embedded teaching of information literacy skills in the undergraduate curricula, limited contact between librarians and academics, to unavailability of IL policy guidelines to govern the delivery of IL activities.

In response to the above challenges the informants and students identified a number of strategies that would enhance the effective delivery of IL at Huye Campus Library. Although the two groups of respondents differ in their opinion of what should or not should not be taken up, the general consensus was to that there was need to improve the level of librarians and academics collaboration in order to enhance IL activities/programmes, integrate information literacy skills in the undergraduate taught curricula, develop IL assessment programmes, enhance marketing of library activities in to sensitize the students and the campus community on various elements of IL, and formulate specific IL policy guidelines that must be amalgamated into the campus-wide policies.

In sum it can be concluded that Huye campus has the potential to grow from its current average status of IL performance. However, to achieve this the library requires the support of the both the administration and the teaching staff to not only expand the IL activities across its campuses but also formalize these activities in the formal university

curriculum and supporting them with appropriate policies that guides the running of IL activities.

5.3 Recommendations

The findings of this study provide a clear status of the information literacy skills of undergraduate students at Huye Campus, University of Rwanda. IL skills among undergraduate students have been found to be low than expected of students in higher institutions of learning. The situation however can be improved significantly if IL activities are administered properly and are effectively structured in collaboration of faculty members, library staff and administrators.

From the data presentation, analysis, interpretation of the finding of this study, and from the conclusions drawn from them, also from the suggestions of participants, the following recommendations are proposed as way forward towards streamlining and enhancing IL delivery at the campus:

5.3.1 Increasing the Competence Level of IL Skills among Library Users

The findings revealed a very lower level of information literacy skills of Huye Campus undergraduate students. From the findings it can be seen that the strategies for increasing the competence level of IL skills among not only undergraduate students but also among all library users needed to be structured and applied. This would require paying attention to several issues as stated below.

5.3.1.1 Policy Improvement

The policy guidelines governing the delivery of IL activities in order to equip students with adequate IL skills for their lifelong learning need to be developed. The Huye campus administrators, faculty and library staff should sit together and formulate appropriate IL policy which will outline the programmes and/or activities, identify and develop appropriate teaching methods, define skills needed at each level, establish mechanisms for regularly upgrading these skills, establish staff needed at each level and methods of motivating them to more committed to the IL program, provide for procedures on how to create and facilitate collaboration between library and faculty staff and provide the budget , responsibilities and infrastructural facilities required to effectively run IL activities. This IL policy should be cascaded from the university-wide mission statement.

5.3.1.2 Curriculum Development

The results revealed that IL programmes are run by only the library with very little input from other potential stakeholders. To reverse this, the study recommends the development of IL curriculum either as a separate course or integrated within related campus wide courses. Both the faculty and library staff should be charged with the responsibility of collaboratively developing the programme and setting out methods of evaluating students' comprehension of the knowledge.

5.3.1.3 Staff Training

Although the library staff indicated that they had perquisite IL skills, the findings revealed that they were deficient in a number of skills. Thus the study recommends refreshing course in form of short-time courses, workshops and seminars on administrative skills, evaluation skills, curriculum development and delivery, leadership skills, planning skills, promotion skills, subject expertise skills and teaching skills to enhance the library staff general competencies. An elaborate collaboration between Academic Liaison Librarians (ALLs) and academic staff need to be reinforced to train more library staff in teaching of online information literacy tutorials skills, course-related or integrated instruction Information Literacy courses, and curricular learning outcomes.

5.3.1.4 ICT Infrastructure

In order to reinforce the already existing ICT facilities and equipment, there is the need for Huye Campus to plan and budget for IL activities taking consideration of the increasing number of students being enrolled in the campus. A certain percentage of the university budget must be dedicated towards the IL activities. However, for future sustainability, all efforts must be exerted towards imparting IL skills to the students as early as possible to make them independent and thereby free the library staff to concentrate on incoming students.

5.3.2 Advocacy to Raise Awareness of the Significance of IL

The study also established that sensitization of IL activities is not adequately achieved in Huye campus. To generate the required support for IL promotion, the library should

engage in aggressive advocacy program that should extend beyond the university. Efforts should be made to reach government officials, academic administrators, business and industry leaders, opinion leaders in the Civil Society, Media and not for-profit sectors, promoting Information Literacy for Lifelong Learning. Hopefully such tireless championship would win both campus-wide and nation-wide support.

However, merely providing information and creating awareness about an issue does not automatically lead to behavioral change. To realize intended outcome, there is need for the integration of information literacy in the curriculum and customization of internationally developed IL standards. Seminars/workshops jointly organized by librarians and education policy makers for community level representatives of local government must be organized not just for sanitization on importance of IL but also to teach them on how to develop appropriate policy and programs for promotion of information literacy.

5.3.3 Suggestions for Further Research

This study set out to investigate information literacy skills among undergraduate students of Huye Campus with the view to propose strategies to improve the information literacy programmes offered at the campus. Findings from this study point to the following topics for further investigation:

1. This study used a self-assessment approach to determine the students IL competency level. However, to ascertain these competencies, a study needs to be done requiring the students to practically engage IL activities such as search in for both print and electronic

resources, retrieving information, repackaging information and disseminate the information.

2. Working from a backdrop that indicates IL as significant for lifelong learning, similar study needs to be extended to post-graduate students to establish if the library requires to provide a general programme or a provide customized programme to the different groups of students.

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APPENDICES

APPENDIX A: INFORMED CONSENT LETTER

Dear Respondent,

My name is Antoinette Kankundiye and I am a Msc student registered in the Department of Library, Records Management, and Information Studies, School of Information Sciences, Moi University. I am conducting research on assessment of information literacy skills of undergraduate students in the Huye Campus, University of Rwanda. This study will be undertaken with the main objective of coming up with appropriate programs for training the UR students Huye campus in particular and all library users in general on how to access and use library information services and to develop the effective strategies to improve the user satisfaction.

Kindly spare a few minutes and answer all questions sincerely. The information given will be treated with full confidence.

Your assistance will be highly appreciated.

Thank you in advance

Antoinette Kankundiye IS/MSC/58/13

Moi University,

P.O. BOX 3900630100

Eldoret.

KENYA

APPENDIX B: STUDENTS QUESTIONNAIRE

I am a Master student at Moi University. I am conducting research on the assessment of information literacy skills of undergraduate students in Huye Campus, University of Rwanda. This research is purely academic and any information provided shall be treated with confidentiality. Kindly participate and respond appropriately to the questions given below. Your contributions are highly appreciated.

Thank you very much in advance.

SECTION A : BACKGROUND INFORMATION

Education qualification

University level I [] University level II [] University level III [] University level IV []

University level V []

SECTION B: SPECIFIC RESEARCH QUESTIONS

Section B.1: the Current Level of IL skills of Undergraduate Students

1. Answer the following questions: tick the appropriate response according to you using four point scales ranging from 1. Strongly Disagree, 2. Disagree, 3. Agree and 4. Strongly Agree.

No	Questions	1	2	3	4
1	When seeking information I recognize the need to increase my general knowledge about the topic and select reliable sources to gain a general overview of the topic.				
2	When seeking information I am able to define or modify a topic to achieve a manageable focus and refine the topic based on discoveries through the research process.				

3	When seeking information I identify key concepts and terms that best describe a research topic.				
4	When seeking information I identify the value and differences of potential resources in a variety of formats.				
5	When seeking information I identify the purpose and audience of potential resources, and use appropriate sources for the type of research project being undertaken.				
6	When seeking information I identify keywords, synonyms, and phrases to search for the information needed, and understand that keyword searching can be used to retrieve subject headings and use this method to locate them.				
7	When seeking information I use various search systems to retrieve information in a variety of formats and recognize location information in the library catalog.				
8	When seeking information I read the text and select main ideas, restate textual concepts in my own words and select data accurately, and identify verbatim material that can be then appropriately quoted.				
9	When seeking information I examine and compare information from various sources in order to evaluate reliability, validity, accuracy, authority, timeliness, and point of view or bias.				
10	When seeking information I analyze the structure and logic of supporting arguments or methods.				
11	When seeking information I recognize prejudice, deception, or manipulation.				
12	When seeking information I recognize the cultural, physical, or other context within which the information was created and understand the impact of context on interpreting the information.				
13	When seeking information I recognize interrelationships among concepts and combine them into potentially useful primary statements with supporting evidence.				
14	When seeking information I extend initial synthesis, when possible, at a higher level of abstraction to construct new hypotheses that may require additional information.				
15	When seeking information I utilize computer and other technologies (e.g. spreadsheets, databases, multimedia, and audio or visual equipment) for studying the interaction of ideas and other phenomena.				
16	When seeking information I determine whether information satisfies the research or other information need.				
17	When seeking information I use consciously selected criteria to determine whether the information contradicts or verifies information used from other sources				
18	When having reached information I draw conclusions based upon information gathered, test theories with discipline-appropriate techniques (e.g., simulators, experiments).				
19	When having reached information I determine probable				

	accuracy by questioning the source of the data, the limitations of the information gathering tools or strategies, and the reasonableness of the conclusions.				
20	When having reached information I integrate new information with previous information or knowledge.				
21	When having reached information I select information that provides evidence for the topic.				
22	When having reached new information I organize the content in a manner that supports the purposes and format of the product or performance e.g. outlines, drafts, storyboards.				
23	When I have reached information I articulate knowledge and skills transferred from prior experiences to planning and creating the product or performance.				
24	When I have reached information I integrate the new and prior information, including quotations and paraphrasing, in a manner that supports the purposes of the product or performance, and manipulate digital text, images, and data, as needed, transferring them from their original locations and formats to a new context.				
25	I usually maintain a journal or log of activities related to the information seeking, evaluating, and communicating process, and reflect on past successes, failures, and alternative strategies.				
26	To communicate the information I choose a communication medium and format that best supports the purposes of the product or performance and the intended audience.				
27	To communicate product or performances, I range information technology applications in creating the product or performance, incorporate principles of design and communication, and communicate clearly and with a style that supports the purposes of the intended audience.				
28	I'm informed and follow laws , regulations, institutional policies, and etiquette related to the access and use of information resources				
29	I select an appropriate documentation style and use it consistently to cite sources and I post permission granted notices as needed for copyrighted material.				
30	I preserve, store, and reuse ,record and archive information for future use				
31	I articulate knowledge and skills transferred from the existing knowledge and I create the new one.				
32	I choose a communication medium and format that best supports the purposes and the intended audience.				
33	I find a larger context in information to create wisdom.				
34	I create effective and efficient search queries and apply appropriate vocabulary, navigate hyperlinks when retrieving information and socially communicating with others				
35	I select digital collections and web sites based on their characteristics				
36	I use problem solving and decision making in selecting a range				

	of digital tools based on their effectiveness and efficiency				
37	I exercise control in the management of information, making decisions on the quality, reliability of the information.				
38	I use personal perspectives with knowledge gained based on critical thinking to determine whether or not to integrate digital information related to a specific task				
39	I apply the information technology in integrating personal knowledge, experience, creative insight to develop new knowledge and novel solution to problems/tasks				
40	I apply information technology to add personal quality values and ethics combined with obtained knowledge and information obtained in sharing the information wisely for the benefit of others				

2. What are your opinions about the importance of information literacy student competency? Rate on a scale from 1 (not important) to 4 (very important) the extent to which each of the following competencies is important for achieving a successful outcome (defined as students' satisfaction with their work) to a research project or course assignment:

STATEMENT	1	2	3	4
Evaluate and think critically about information				
Use information ethically and legally				
Identify and address information need				
Access information effectively and efficiently				
Use information effectively and efficiently				

Section B.2: IL activities /programmes put in place at huye campus for undergraduate students to acquire the IL skills.

3. The following activities are put in place at Huye Campus for undergraduate students to acquire the IL skills? Rate your answer on a four point scale ranging from 1. Strongly Disagree, 2. Disagree, 3. Agree and 4. Strongly agree.

STATEMENT	1	2	3	4
Online tutorials teaching these information literacy skills				
Course-related or integrated instruction				
Library use-orientation				
Exhibitions				
Information Literacy courses in curriculum by the librarian in collaboration with the faculties				
Faculty develop these skills through curricular learning outcomes				

One-on-one consultation with librarians				
Information Literacy Workshops planned for undergraduate students				
Informational literacy instructional sessions to support specific classes				

Section B.3: The ICT facilities and equipments for undergraduate students at Huye Campus

4. Does Huye Campus of University of Rwanda have ICT facilities and equipments for undergraduate students that will enhance their information literacy skills?

Yes No

5. If your answer is yes, please list the ICT facilities and equipments available for undergraduate students at Huye Campus that will enhance their information literacy skills.

Please write your answer here: -----

6. If your answer is No, what are the ICT facilities and equipments needed by undergraduate students at Huye Campus that will enhance their information literacy skills?

Please write your answer here:-----

Section B.4: The challenges encountered in providing IL programmes

7. What are the challenges experienced by Huye Campus undergraduate students in seeking, locating evaluating and effectively using information?

Please write your answer here:-----

8. Please list any other methods that can increase information literacy skills and/or ways librarians can assist you with improving student research skills.

Please write your answer here:-----

Section B.6: Strategies for improvement of IL access and use of information.

9. Are the following appropriate strategies for improvement of information literacy skills of undergraduate students at Huye Campus library? Rate your answer on a four point scale ranging from 1. Strongly Disagree, 2. Disagree, 3. Agree and 4. Strongly Agree.

STATEMENT	1	2	3	4
Offer a for-credit introduction to research course or incorporate learning segments into existing courses				
Offer tutorials teaching advanced searching skills in specific resources or for a discipline-specific purpose				
Exploit opportunities for embedding information literacy set out in the Review of Undergraduate Education				
Embed the teaching of information literacy skills in the undergraduate and postgraduate taught curricula				
Raise awareness within the University of the importance of embedded information literacy teaching for students				
Develop measures for assessing the impact of information literacy teaching on student achievement				
Develop a strategy for providing support to researchers in terms of the teaching of information literacy skills				
Contribute to producing information literate graduates				
Utilized current and emerging learning technologies to enhance and support student information literacy learning				
Develop an information literacy section of the library website				

10. What other strategies do you suggest that should be done to improve IL skills among undergraduate students at Huye Campus?

Thank you

APPENDIX C: INTERVIEW OF KEY INFORMANTS

Dear Respondents,

I am a Master student at Moi University. I am I am conducting research on the assessment of information literacy skills of undergraduate students in the Huye Campus, University of Rwanda. This research is purely academic and any information provided shall be treated with confidentiality. Kindly participate and respond appropriately to the questions given below. Your contributions are highly appreciated.

Thank you very much in advance.

1. Education qualifications

Certificate Diploma Bachelors degree MA/MSc

PhD

2. Current position held in the Campus

Librarian Dean Campus Management

Section C.1: The Current level of IL skills of Undergraduate Students

1. According to you the Huye Campus undergraduate students are able to use the following skills in their research? Please choose the appropriate response (1.Never, 2.Rarely, 3.Sometimes, and 4.Always).

ACRL IL skills	1	2	3	4
Evaluate and think critically about information				
Use information ethically and legally				
Identify and address information need				
Access information effectively and efficiently				
Use information effectively and efficiently				

Section C.2: IL activities

2. Does Huye Campus Library have an IL programmes /activities? Yes

No

If yes, what approaches do you use to deliver this program?

3. The library orientation offered during the first week to new students is enough to enable the use library resources? Yes No

4. Do you have a integrated course of information literacy in your curriculum? Yes

No

If yes, who is responsible for teaching it?

Section C.3: The skills that library staff possess in delivery of il activities.

5. Does the Library staff possess skills to effective delivery of IL activities? Rate on a scale from 1 (strongly disagree) to 4 (Strongly agree)

STATEMENT	Strongly Disagree (1)	Disagree (2)	Agree (3)	Strongly Agree (4)
Accurately define information needs				
Critically evaluate information				
Understand economic issues				
Understand legal issues				
Understand ethical issues				
Select appropriate investigative methods				
Reconcile personal values and knowledge with new information				

- As librarian do you have the following skills for effective guidance to library users: communication skills, presentation skills, promotion skills, teaching skills, instructional design skills, and administrative skills?

Section C.4: The existing policies that guides the delivery of IL skills at Huye campus.

6. Does Huye Campus Library, University of Rwanda have any existing policies that guide the delivery of information literacy skills to undergraduate students?

Yes

No

7. If your answer is yes, list any existing policies that guide the delivery of information literacy skills to undergraduate students. Please write your answer here-----

8. If your answer is No, what policies do you suggest to be adopted for guiding the delivery of information literacy skills to undergraduate students at Huye Campus of

University of Rwanda? Please write your answer here-----

Section C.5: ICT facilities and equipments for Undergraduate Students at Huye Campus

9. Does Huye Campus Library, University of Rwanda have ICT facilities and equipments for undergraduate students that will enhance their information literacy skills?

Yes

No

10. If your answer is yes, Please list the ICT facilities and equipments available for undergraduate students at Huye Campus that will enhance their information literacy skills.

Please write your answer here: -----

11. If your answer is No, what are the ICT facilities and equipments needed by undergraduate students at Huye Campus that will enhance their information literacy skills?

Please write your answer here:-----

Section C.6: The challenges encountered in providing IL programmes

12. What are the challenges experienced Huye Campus undergraduate students in seeking, locating, evaluating and effectively using information?

Please write your answer here:-----

Section C.7: Strategies for improvement of IL access and use of information

13. Are following strategies for improvement of information literacy skills of undergraduate students at Huye Campus library on a four point scale ranging from 1. Strongly Disagree, 2. Disagree, 3. Agree and 4. Strongly Agree.

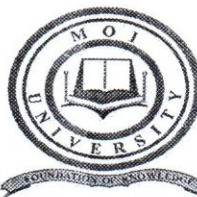
STATEMENT	1	2	3	4
Offer a for-credit introduction to research course or incorporate learning segments into existing courses				
Offer tutorials teaching advanced searching skills in specific resources or for a discipline-specific purpose				
Exploit opportunities for embedding information literacy set out in the Review of Undergraduate Education				
Embed the teaching of information literacy skills in the undergraduate and postgraduate taught curricula				
Raise awareness within the University of the importance of embedded information literacy teaching for students				
Develop measures for assessing the impact of information literacy teaching on student achievement				
Develop a strategy for providing support to researchers in terms of the teaching of information literacy skills				
Contribute to producing information literate graduates				
Utilized current and emerging learning technologies to enhance and support student information literacy learning				
Develop an information literacy section of the library website				

14. Please list any other strategies that can increase information literacy skills and/or ways librarians can assist students to improve their research skills.

Please write your answer here:-----

Thank you

APPENDIX D: INTRODUCTION LETTER FROM MOI UNIVERSITY



MOI UNIVERSITY

DEPARTMENT OF LIBRARY, RECORDS MANAGEMENT AND INFORMATION STUDIES

Tel: (053) 43231

Fax No. (053) 43292

Telex NO: 35047 MOIVASITY

E-mail: hodlis@mu.ac.ke or deanis@mu.ac.ke

P. O. Box 3900

Eldoret

Kenya.

REF: MU/SIS/LRMIS/SA/34

14th, Jan 2014

TO WHOM IT MAY CONCERN,

RE: DATA COLLECTION – KANKUNDIYE ANTOINETTE

The above named is a postgraduate student in department of library, Records Management and Information Studies, School of Information Sciences, Moi University pursuing a Master of Science degree in library and Information sciences She is carrying out a research programme entitled “Assessing the Information Literacy Skills of Undergraduate Students at University of Rwanda - Huye Campus Library” under supervision of Dr. Damaris Odero and Ms. Emily Ng’eno.

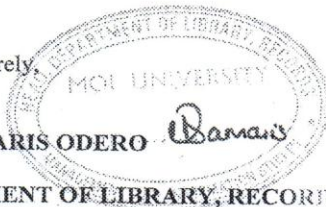
The purpose of writing is to request you to kindly allow Ms. Antoinette to conduct the research in your organization and request your staff to assist her collect the necessary data. The present field work will last from January–15th to February, 2015 at Huye Campus. Data analysis and interpretation will be done in Kenya for a period of four months, (16th February to April 2015), during which she will also be undertaking her fourth and last taught semester. The information given will be treated with utmost confidentiality and will be use only for purpose of the research. We look forward to your continued support and co-operation.

Thank you.

Yours sincerely,

DR. DAMARIS ODERO
HEAD,
DEPARTMENT OF LIBRARY, RECORDS MANAGEMENT & INFORMATION
STUDIES

DO/mm



APPENDIX E: INTRODUCTION LETTER FOR DATA COLLECTION

KANKUNDIYE Antoinette
University of Rwanda/Huye Campus
LIBRARY
e-mail: kanatonyf@yahoo.fr or kankundanto@gmail.com
Huye, 22th June, 2014

To The DVC
University of Rwanda
Kigali

Dear Sir,

RE: Data collection

I'm pleased to request you to kindly allow me to conduct the research in your institution (University of Rwanda, Huye Campus) during January-February 2015. The work aims to collect information on 400 respondents consisting of 379 students, 10 Library staff, 11 Deans of Faculties, from all colleges that operate at Huye Campus.

In fact, I'm a Masters student Registered in the Department of Library, Record Management and Information studies, School of Information Sciences, Moi University and I'm carrying out a research program entitled: **Assessing the Information Literacy Skills of Undergraduate Students at Huye Campus Library, University of Rwanda**. The objectives of this study are: to examine the current competency level of information literacy among undergraduate students at Huye Campus, to identify activities put across to achieve IL for Huye Campus undergraduate students, to identify the skills that library staff possess in delivery of IL activities, to examine the existing policies that guides the delivery of information literacy skills at Huye Campus, to establish how ICT contribute to information literacy skills of undergraduate students, to identify the challenges experienced by Huye Campus undergraduate students in seeking, locating, evaluating and effectively using information. The findings will reveal the state of information literacy among undergraduate students of Huye Campus, University of Rwanda and propose strategies to improve the information literacy skills offered to Library users.

Attached is to whom it may concern from my department.

Yours sincerely,


KANKUNDIYE Antoinette

APPENDIX F: INTRODUCTION LETTER TO CARRY OUT RESEARCH



Research and Postgraduate Studies Unit

Kigali, 7th January 2015
RPGSU/R004/01/2015

To the Principal
College of Arts and Social Sciences
University of Rwanda

12/01/2015
K. Masanja
RPGSU

Dear Dr. Kaitesi,

Re: Introduction to carry out research

The above captioned matter refers

On behalf of the University of Rwanda, I am pleased to introduce to you, Ms. Antoinette Kankundiye, a staff of University of Rwanda Library who is undertaking Postgraduate Studies in Library Record Management and Information Sciences at Moi University. She will be collecting data in your institution on her Master Degree in Library and Information Sciences research project titled "*Assessing the information Literacy Skills of Undergraduate Students at Huye Campus Library, University of Rwanda*" for the period 12th January to 15th March 2015.

Kindly accord her your cooperation to enable her research to be successful.

In case you need more information, please do not hesitate to contact the University of Rwanda Director of Research and Postgraduate Studies Unit on V.G.Masanja@ur.ac.rw

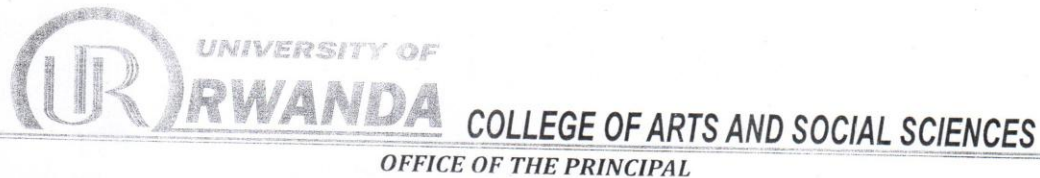
With kind regards,

Prof. Verdiana Grace Masanja
Coordinator of Research and Post Graduate Studies
UR Research and Postgraduate Studies Unit

CC:

- Deputy Vice Chancellor (All)

APPENDIX G: AUTHORISATION LETTER TO CARRY OUT RESEARCH



Huye, January 13th 2015
Ref: 0017/PO/CS/015

The Director Research and Post Graduate Studies Unit
University of Rwanda,
P.O.BOX 4285 Kigali
Rwanda

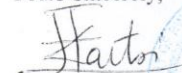
Re: Authorization letter to Ms. Antoinette Kankundiye to carry out research

Dear Madam,

I am pleased to grant permission to Ms. Antoinette Kankundiye to collect data for her research project entitled "*Assessing the information Literacy Skills of Undergraduate Students at Huye Campus Library, University of Rwanda*" from 12th January to 15th March 2015.

I wish her to be successful in her research.

Yours Sincerely,


Dr. Usta KAITESI
Principal



Cc:
- Deputy Vice- Chancellor (All)-Kigali
- Director of Libraries, CASS
✓ Ms. Antoinette Kankundiye