

Information Literacy Levels among Students in four Selected Higher Education Institutions in Lusaka

Kaoma L. Daka

Department of Library and Information Science, University of Zambia School of education
Email: kayldaka@gmail.com

Chitundu P.C. Mwila

Department of Library and Information Science, University of Zambia School of education
Email: chitunduchisunkamwila@gmail.com

Thabiso M, Mwanachingwala

Department of Library and Information science, University of Zambia School of education

Abel C. Mkulama

Department of Library and Information Science, University of Zambia School of education
Email: abelmkulama@gmail.com

Abstract

Information Literacy (IL) skills are vital in Higher Education, where students are expected to be critical thinkers and lifelong learners, particularly in today's digital age. This study sought to investigate IL among students in higher learning institutions in Lusaka, Zambia. Its objectives were drawn from SCONUL's 7 Pillars of Information Literacy and included: finding out the students' ability to identify an information need; finding out how they defined the parameters of the information needed; establishing how they construct strategies for locating information; gauging the students' ability to effectively/efficiently access the information needed; finding out the students' ability to evaluate information; examining how well students organise information professionally and finding out students' ability to apply the knowledge gained. A sample of 250 students was randomly selected from 2 universities and 2 colleges in Lusaka. Structured questionnaires, consisting Likert Scale statements as well as open- and closed-ended questions, were used to collect the data. Research findings revealed that students had difficulties in identifying their information needs; were more familiar with Google than other search tools; used convenient search strategies; used relevance as main evaluation criteria; had difficulties citing electronic sources; and presented information better verbally than in written format. The study concluded that while students showed some evidence of information literacy, there was a serious need to introduce IL programs across learning programs in order to enhance students' IL proficiency. Further, it was recommended that Library orientation programs be re-designed for more effective IL instruction.

Keywords: Information Literacy, SCONUL Pillars, Higher Education

1.0 Introduction

The turn of the 21st century saw a change in the way of life of many communities, from industry-focused to knowledge-based. Propelled by the proliferation of Information Communication Technologies (ICTs) in everyday life, information is now widely available on every subject, easily accessible in a variety of formats.

The realities of this 'information explosion' can be seen in Higher Education institutions, the melting-pots of information and ideas. Here, issues surrounding the quantity and quality of the information available to students mean that mere memorisation facts and figures is insufficient to successfully accomplish tasks, solve problems or make decisions. Students need to be able to leverage the information and for that, they need to be Information Literate, i.e. they need to be able to effectively and efficiently identify, locate, evaluate and use information needed. In today's information and knowledge-rich environment, Information Literacy (IL) is seen as critical in the development of multi-skilled learners, who are motivated, critical thinkers and problem solvers, (Motschnig-Pitrik & Holzinger 2002; Ojedokun, 2007; Twaambo, 2019).

Throughout their years of study, students navigate through a number of tasks, problems, questions and decisions. So whether it is personal study, tests, assignments, seminar presentations, group discussions, term projects, examinations, etc., success hinges on the application of specific and relevant information (Gross & Lathan, 2009). Students are never short of information, in fact they are overwhelmed by the variety, velocity and volume of library resources ranging from monographs to peer-viewed journals, course work material generated by academic faculty and fellow students, internet-based resources etc. Thus challenges arise when students do not know where to look for specific information or how to look; how to judge validity, authenticity and accuracy of information or even deciding when visiting the library would be more effective than a Google search.

This highlights students' need for skills, attitudes and values necessary for effective & efficient retrieval and application of information. They need Information Literacy (IL) skills. The Society for College, National and University Libraries (SCONUL), defines IL as the set of skills and competences needed to identify information needs, effectively locate the needed information; manage the abundant information available; critically evaluate resources; synthesize information; effectively communicate the knowledge gained and ethically apply it to problem solving or decision making. (SCONUL, 2011)

IL was coined by Paul Zurkowski in 1974 to describe those that were "...trained in the application of information resources to their work", those that "...have learned techniques and skills for using the wide range of information tools as well as primary resources in moulding information solutions to their problems" (Badke, 2010:49). Although it was initially conceived as a set of problem-solving techniques that reflected the needs of what was then private industry's newly emerging technological environment, it was later adopted by Library Science in the User Education/Library Instruction, (Virkus, 2014). Thus, libraries have been very critical in IL instruction for decades.

1.2 Libraries and IL instruction

Libraries are seen as key in the promotion and teaching of IL to users. According to the Association of College and Research Libraries (ACRL) it is a duty of university libraries to equip students with the necessary information skills to function effectively and to meet the challenges of the information age (ACRL, 2000) With their expertise in information organisation and retrieval as well as having quality resources at their disposal, librarians are equipped to help information seekers understand how knowledge is organised. Additionally, their intricate understanding of users' information behaviour makes it possible for Librarians to guide users on how different information resources can be used to derive maximum benefit (Dadzie, 2008).

In Developed countries, IL-specific skills training are commonly offered by academic Libraries, often in collaboration with academic faculty. These include stand-alone classes, web-based tutorials or course-integrated instructions. This is however not the case in most developing countries, where academic libraries' User Training or Library Orientation and the traditional teaching of one-to-one searching & retrieval methods by reference service staff are often the only IL-related training that students are offered. Library User training programs often consist of guided-tours of library buildings, explanations of the various information resources and services provided, explanations of how to locate information resources via the Library catalogue, etc. Further, they are often offered to new users/students at entry level and are a one-off activity. One-to-one search activities by Reference librarians, ideally meant to be provided more regularly, are often hampered by inadequate staffing or limited resources (Lwehabura & Stilwell 2008). In reality, attendance by students at these programmes is often very low and do not provide adequate information literacy skills (Akakandelwa, 2010). The effectiveness of orientation program thus often questioned because of their limited scope, mode of delivery and detachment from the students' world of learning. Kavyula (2003:221) states that "...to have practical application, IL instruction is best carried out in the context of the students' daily use of information."

There is thus urgent need to re-design these programs in terms of scope and delivery if they are to be effectively impart IL skills to students. Moreover, scholars agree that because IL is inter-disciplinary in nature, IL initiatives would be more effective if integrated into subject areas across university programmes (Omar, Haji & Mwitumbe, 2014; Dadzie, 2008) as opposed to stand-alone courses. This calls for close collaboration of librarians with academic faculty and support by administrators. It is argued that such an institution-wide approach harnesses the expertise that librarians

have, those of academic staff (pedagogy) and policy frameworks do much to enhance the IL learning experience for the students.

1.3 Information Literacy in Higher Education

IL lends its relevance to students in Higher Education as an enabler in the formulation of research questions based on identified needs, development of appropriate search strategies, accessing of information required from a variety of sources, as well as the organisation of information retrieved using critical thinking and problem solving approaches (Doyle, 1996). Information Literate students are able to think through problems critically with the view of finding solutions, a trait useful within and outside the classroom. They are also able to adapt to the increasing demands of the environment around them as they progress in their studies, they become lifelong learners: individuals who have 'learned how to learn', and can always find the information needed for any task or decision at hand (Ojedokun, 2007; Lawal et.al. 2008). The absence of IL skills, the inability to identify an information need for instance, can be seen in the formulation of poorly phrased search queries, over-reliance on particular search engines for all queries and the retrieval of search results that are different from those sought. (Anafo & Filso, 2014; Head & Eisenburg, 2010). Inability to evaluate the information available often results in failure to judge between fact and opinion, use of poor quality, irrelevant or shallow information or inability to synthesise information with one's knowledge base. This, in today's era of active Social Media, has perpetuated the spread of 'Fake News'. Further, the inability to use information ethically is evidenced by the failure to cite correctly, 'copying & pasting', plagiarism, copyright infringements and poor standards of academic integrity (Averill & Lewis, 2013).

Lack of IL skills thus makes it difficult for students to navigate the murky waters of Information Explosion and may inevitably have a bearing on students' academic performance, such as poor grades in the short term and delayed progression, in extreme cases. Further, the extent of these problems may extend beyond the students' years in H.E., into the workplace and beyond. Left unchecked, these former students struggle to adapt to the dynamism of the workplace, which requires a constant updating of one's knowledge base through independent and collaborative research.

IL is however not a very well-known concept in Zambia, whose education system has for decades been focused on the improvement of literacy levels among the population, which currently stands at 53.3%. To elaborate, emphasis in schools is placed on numeracy and reading initiatives, with little or no mention on of IL as learners progress through primary school (Chisunka-Mwila, Daka & Mwiinga, 2019). Consequently, there is an overwhelming amount of research on literacy and its pedagogy, while a serious scarcity of IL and IL-related studies in the country exists to the point where it is nearly impossible to have an accurate picture of IL in the country and specifically, in H.E. A body of knowledge on the subject would better inform IL sensitization efforts and calls for its in H.E. curricular.

1.4 Statement of the Problem

IL is an important element in everyday life as it empowers individuals and communities leverage information for problem solving and decision making. In higher education specifically, it enables learners to take greater responsibility for their learning and develops in them the critical thinking skills necessary for problem solving and lifelong learning. Literature on the information literacy landscape in the country would be better inform any information literacy advocacy and initiatives. However, there seems to be a dearth of information on the subject, prompting the need for an exploratory study like this one. Hence, this study sought to investigate the information literacy among higher education students in Lusaka, as ground work for future information literacy advocacy and initiatives.

1.5 Objectives of the Study

The purpose of this study was to investigate the information literacy among students in four selected colleges and universities in Lusaka. It specifically sought to:

1. establish students' ability to identify a need for information to address a research question
2. investigate how students define the parameters of the information needed
3. establish how students construct strategies for locating information and data needed
4. gauge students' ability to effectively/efficiently locate and access the information needed
5. investigate students' ability to evaluate information retrieved

6. establish out how well students can organise information professionally and ethically
7. investigate students' ability to apply the knowledge gained from the information found

2.0 Literature review

Gowri & Padma (2018) studied the information literacy skills of engineering students of PSR Engineering College in India using the SCONUL 7 Pillars model. They found that students in their study were better skilled at: i) identifying the concepts and terms related to the information they need; ii) knowing what they don't know to identify and information gap; iii) defining the scope of search questions clearly in appropriate language; iv) using a range of retrieval tools and resources and using a range of retrieval tools and resources effectively. They are least skilled at: i) combining the existing information with original concept; ii) using new tools as they become available; iii) identifying controlled vocabularies and taxonomies to aid in searching if appropriate ; iv) identifying when the information need has not been met and v) critically appraising and evaluating their own findings and those of others.

Kimani & Onyancha. (2015) and Chamani (2018) conducted studies of entry level information literacy skills of incoming first-year undergraduate students. Their findings were very similar despite the fact that most respondents in the former study had library user training prior to university, while the latter did not. In Kimani & Onyancha's (2015) study at a university in Kenya, most of the students were: not knowledgeable about search strategies; had fairly good computer skills, but not familiar with retrieval tools other than Google; familiar with both electronic and printed information resources, but could not differentiate between primary and secondary sources; and were unfamiliar with ethical issues of information usage, such as citing, plagiarism and referencing styles. Chamani's (2018) study at a university in Sri Lanka found that students: had fairly good computer skills and good reading habits, but poor information search skills; were members of public libraries, but unfamiliar with use of library catalogues; and thus unable to make effective use of the library. Both studies concluded that the students did not have adequate IL skills required for successes in a university and recommended IL skills-specific courses to be provided.

Mutula, Wamukoya & Zulu (2004) in their report on the extent of integrating Information Literacy within the Department of Library and Information Studies academic program at the University of Botswana revealed that students in their study did not have satisfactory information literacy skills such as ability to identify, locate, review, select, and apply information needed for their studies and in the work environment; had difficulties in finding information resources needed to undertake their studies; had difficulties utilizing relevant tools to locate information and knowledge; and had difficulties in critically evaluating, analysing, and examining the information found.

Baro & Fyneman (2009) undertook a study on IL among undergraduate students in the Faculty of Social Sciences at Niger Delta University. It was aimed at determining the students' level of awareness of resources available in the university, finding out their level of digital literacy and the different search strategies they used. Key findings were that the students were aware of and made use of various sources such as consulting reference librarian, subject experts, and library resources. They used different search strategies such as chaining, browsing, consulting colleagues, browsing library collections and extracting using the library card catalogue. Findings showed that they also used the internet, different search engines and websites to source for information. The study however concluded that the students thought they knew more about IL than they were able to demonstrate when put to a test.

Baro, Endouware & Ubongu (2011) investigated the information literacy of undergraduate medical students Niger Delta University. It sought to determine whether the students were information literate and if they were aware of and used different information resources available. Findings showed that unlike Social Science students in the earlier study, the medical students' lacked of awareness and inability to use electronic medical resources such as MEDLINE, HINARI, the Cochrane Library and EbscoHost, depending mostly on textbooks and colleagues for information. The medical students also showed poor database searching skills resulting. Lack of time and inability to locate relevant information were cited as challenges that hindered the effective utilization of the library.

In Ghana, a study to promote IL among undergraduate students was undertaken at Ashesi University College by Anafo

& Filson (2014). The aim, among others, was to establish a baseline of students' skills around which IL programs could be built. Findings showed that most students lacked basic search skills, evidenced in their difficulties in identifying concepts, formulation of search strategies and unfamiliarity with the use of search tools such as the library catalogue and bibliographies. This is despite the Library having previously offered expanded Library Orientation program that offered more specialized IL skills training. Findings however found that most students had not grasped the fundamentals of ethical use of information. It concluded these challenges had a negative impact on the teaching and learning process at the institution.

Malanga & Boemo-Jorosi (2018) sought to assess IL skills among the undergraduate students at the University of Livingstonia in Malawi, with special focus on second year students. Findings revealed a high level of awareness of types of information sources, but poor information search and retrieval techniques. Further, the students did not know how to evaluate information. It concluded that majority of students at the University of Livingstonia did not demonstrate adequate IL skills and recommended that formal IL curriculum be considered. These findings correspond with those of Abdelrahman, Jwaifell, & El-Subhieen (2014) who studied IL among incoming First-year Undergraduates Students majoring in English Language at Al-Hussein Bin Talal University. They highlight two key points: (i) that library orientation alone is not enough to make one information literate, and (ii) that most students entering colleges and university are not information literate.

The current study was anchored on SCONUL's Seven Pillars of Information Literacy model (1999, revised in 2011). The model defines the core skills and competencies (abilities) and attitudes and behaviours (understanding) at the heart of information literacy development in higher education (SCONUL Working Group on Information Literacy, 2011). The first four pillars of the model focus on students' ability to locate and access information, while the remaining three pillars emphasise on the ability to understand and use information.

The seven pillars of IL are: Identifying, i.e. the ability to identify a need for information to address a research question; Scoping: i.e. the ability to assess one's current knowledge and identify gaps; Planning: i.e. the ability to construct strategies for locating information and data; Gathering: i.e. being able to locate and access the information needed; Evaluating: i.e. ability to review the research process and compare and evaluate information; Managing: i.e. being able to organise information professionally and ethically; and Presenting: i.e. the ability to apply the knowledge gained through presentation of results, synthesis of the information and dissemination, (SCONUL, 2011).

3.0 Methodology

This was an exploratory study that used the mixed-method design, combining qualitative and quantitative approaches. Four higher education institutions in Lusaka city were purposively selected on the basis that they had well established and functional libraries where a pool of respondents could easily be drawn. These consisted of two (2) colleges and two (2) universities. Convenience sampling was then used to select 250 students from those who frequented the four (4) libraries over a two (2) week period. A structured questionnaire was then used to solicit responses from the sample. It consisted of Likert Scale statements, as well as some open- & closed-ended questions. The questionnaire was divided into two (2) sections; section A had questions on the respondents' Demographic background, while section B had a number of questions based on SCONUL's 7 Pillars of IL.

4.0 Research Findings

4.1 Demographics of the Respondents

Two hundred and fifty questionnaires were distributed and 158 were returned, representing a 63% response rate. 41% of the respondents were aged between 17–20 years old, 53% were 21–30 years old, while 6% accounted for those who were 31 years old and older. 64% of the respondents said they had undergone some library orientation/ user training at their institution of learning, while 36% indicated that they had not.

When asked if they were familiar with the term Information Literacy (IL), 69% of the respondents said Yes, while 31% said NO. They were further asked what their understanding of IL was and their responses fell in these three (3) categories. The first related IL to basic literacy and ICT usage, e.g.: "It is being able to read and write well, and use ICTs";

the second related IL being knowledgeable about information, information resources and how to use them, e.g.: "This is being acquainted with or having some knowledge on how to use books or websites to easily access the information you need,"; while the third category of responses indicated that IL has to do with the access, evaluation and application of information, e.g.: "it is being able to know when you need information, how to find it, how to assess its value and then how to use that information properly."

4.2 Students' ability to identify a need for information to address a research question

To find out their ability to identify an information need, respondents were asked to rank on a 5-point scale (never, rarely, sometimes, often, always) how well listed statements described what they did when faced with a question, task or problem. The results revealed that:

- 40.5% of the respondents said that they sometimes try to understand exactly what is required/being asked
- 20% said often or always try to understand exactly what is required
- 26.5 % indicated that they go straight to performing the task/answering the assignment question
- 29% establish what they knew about the topic
- 25.2% find out what they need to know about the subject and
- 16.4% formulate terms/keywords to use information search.

4.3 How students define the parameters of the information needed

To establish their scoping abilities, respondents were asked about types and formats of information sources, search tools and ease of determining the amount of information needed. Respondents were asked to rate on a 4-point scale, how familiar they were with the types of information sources.

- 69.6% said they were extremely familiar with primary sources (people, research articles etc.)
- 26.6% said moderately familiar, 0% said not at all,
- 3.8% said slightly familiar;
- 98.7% said extremely familiar with secondary sources such as textbooks
- 1.3% said moderately familiar;
- 65.2% were extremely familiar with tertiary sources (abstracts, index, encyclopaedia, etc) 32.2% moderately familiar, while 2.5% said slightly familiar.

When asked how familiar they were with print information resources:

- 74.7% said they were extremely familiar,
- 25.3% said moderately & slightly familiar

When asked how familiar they were with print audio-visual resources:

- 63.3% said moderately & slightly familiar with audio-visual formats
- 36.7% were extremely familiar

When asked how familiar they were with electronic information resources:

- 69.6% were extremely familiar with Electronic/Internet-based information
- 30.4% said either moderately or slightly familiar

The respondents were further asked how familiar they were with the use of various search tools and 68.9% said they were moderately and extremely familiar with the use of internet search engines such as Google; only 36.1% said they were moderately and extremely familiar with the use of Library Catalogues; 39.2% said they moderately & extremely familiar with the use of discipline-specific databases.

Further results showed that 41.1% of the respondents said it was easy & very easy for them to determine how much information they need to answer an assignment or complete a task, 37.3% said it was difficult and 21.5% said it was very difficult.

4.4 How students construct strategies for locating information and data needed

In establishing their Planning abilities, respondents were asked about search tools, search strategies and search techniques. Respondents were asked to rate their usage of various search tools. A combined total of 62.7% often used web-based search engines (e.g. Google); 58.9% rarely consulted librarians or library catalogues (OPAC); 39.9% often

used subject-specific databases and 42% sometimes consulted bibliographies.

Respondents were also asked how often they used listed search strategies and techniques. The results revealed that 68.4% of the respondents often scanned the contents pages and indexes; 64.4% sometimes used phrase searching; 53.8% rarely consulted librarians or library catalogues; 47.4% often used Boolean logic operators; 63.2% rarely used truncated search techniques or keywords. When asked how they narrowed or widened their search for information, 71.5% of the respondents often did this by using the publication date, 34.5 used type of information (originality), 55.1% sometimes used format, while 62.1% sometimes used location.

Respondents were further asked to rate their confidence at selecting the most appropriate search tools for a given question or task. Results revealed that 41.1% were either quite confident or very confident; 39.3% were confident; 18.4% of the respondents were either somewhat confident or not confident at all.

4.5 Students' ability to effectively/efficiently locate and access the information needed

In gauging their gathering abilities, respondents were asked about retrieval tools, search strategies and sorting of results. When asked to rate their ability to use a variety of retrieval tools and resources, 31.7% of the respondents were poor; 48.1% were good; 20.2% were very good. Additionally, 12.1% of the respondents rated their ability to convert their search strategies to work in different resources as fair, 49.4% as good; and 39.7% as very good. In terms of their ability to redefine a search strategy based on previous result set, 1.9% of the respondents rated themselves as fair, 53.6% rated themselves as good, 44.3% rated themselves as very good. Furthermore, 7.6% rated their ability to sort and manipulate results sets as being fair, 51.3% as good and 41.1% as very good.

4.6 Students' ability to evaluate information retrieved

Respondents were asked to rate their ability to evaluate the quality, accuracy, relevance, biasness of information they retrieved.

- Regarding the respondents' ability to evaluate the quality of information retrieved: 20.3% rated themselves as poor; 50% rated themselves as good; 20.3% rated themselves very good; and 20.3% rated themselves as excellent.

- Regarding their ability to assess its accuracy (completeness), 53.7% said fair, 37.9% rated themselves good, 8.2% said very good and excellent.

- Further 87.4% ranked their ability to assess the relevance of the information as excellent or very good, 12% as good; 0.6% as fair or poor.

- A total of 57.6% of the respondents rated their ability to identify biasness as poor & fair; 32.9% as good; 9.5% as very good or excellent.

- Furthermore, respondents rated their ability to assess the reputation and credibility of sources as poor as fair (46.2%), as good (31%), 22.8% as very good or excellent.

Finally, when asked to rate their ability to read critically and identify key points/arguments in the information they found, 53.2% rated themselves poor or fair, 28.5% rated themselves good, 18.3% rated themselves very good or excellent.

5.7 How well students can organise information professionally and ethically

In establishing their ability to Manage/organise the information they find, respondents were asked about referencing styles, citation and plagiarism. When asked what "plagiarism" referred to, 3 (three) categories of students' responses were noted:

1. Copying and pasting some one's ideas.
2. Not citing or failing to cite correctly when making reference to another's work
3. Using copyrighted material without permission

All (100%) of the respondents indicated that plagiarism was wrong.

Concerning their ability to use the referencing styles prescribed by their institutions of learning, 46.2% said with ease or with great ease, while 41.7% said with some difficulty or with great difficulty (12%). Furthermore, 87.3% said they could cite printed sources (e.g. books) with ease or with great ease, while 12.7% said with some difficulty. Furthermore, 84.1% said they could cite electronic resources (e.g. e-journals) with some difficulty or with great difficulty, while only 19.6% said with ease or with great ease.

4.7 Students' ability to apply the knowledge gained from the information found

To find out about their presenting abilities, respondents were asked about application of the knowledge gained. When asked to describe how well they incorporated new research findings into the context of the existing knowledge, 24.7% said poor or fair, 24.1% said good or 50.6% said very good or excellent. Respondents were then asked to rate their ability to summarise documents and reports (verbally or in writing), 37.9% said poor or fair, 21.5% said good, while 40.5% said very good or excellent. In addition, when asked to rate their ability to analyse and present data appropriately, 2.5% said poor or fair, 37.3% said good, and 51.1% said very good or excellent.

Respondents were further asked to rate their ability to communicate the information effectively using written styles in a variety of formats (e.g. essay, abstract, literature review, journal articles, posters, PowerPoint presentations, etc.). 46.2% said very good & excellent, said 28.4% good, 25.3% said poor & fair. Finally, respondents were asked how well they communicated information verbally (e.g. discussion, seminar presentation), 60.1% said very good or excellent, 22.1% said good, and 17.7% said poor or fair.

5.0 Discussion of Findings

Research findings show that majority of the respondents were within the average age-range of an under-graduate student in Zambia, which ranges between 19 and 22 years (for school leavers) and graduate between 23 to 26 years old (for four – year programmes). The deviation from the given range accounts for those entering H.E. for in-service training. This means that the students in this study comprised two categories, whose knowledge levels and experiences in as far as information literacy is concerned varied. On the one hand, the younger students are often just out of a secondary school system that still uses the traditional teacher-centred pedagogy and need IL training to enable them take greater responsibility for their learning. On the other hand, the older students usually brought with them the workplace experience of requiring information on-demand for effective corporate decision-making. Both categories require IL instruction. This is further highlighted by the fact that most of the students had received some library instruction, but had a varied understanding IL.

From the findings, one can infer that the majority of the respondents face challenges in identifying an information need and are unable to formulate effective keywords to begin their information search. For instance, by 'sometimes' choosing not to seek clarity or taking the time to understand, the students leave room for misunderstanding or misinterpreting what is asked/required of them. And without taking time establish what one already knows about the topic versus what is being asked, accurately pin-pointing an information need is nearly impossible. Of concern also are the findings pointing to those that immediately plunge into the question/task, because in their rush to get started, they risk having a very ineffective or/and inefficient information search. This is because effective keywords are born out of an understanding of the information needed. These findings are similar to those by Hepworth (1999) and Anafo & Filson (2014) who found that students had difficulty identifying research questions because they did not spend enough time trying to understand it.

Findings show that most of the students were knowledgeable about the types and formats of information sources and use of internet search engines like Google, but had difficulties in determining how much information they needed to meet an information need. "Knowing what you don't know" (identifying a gap in their knowledge) is made easier if one is familiar with the various types & formats of information sources and search tools. This is because it enables students quickly to decide when to use particular types of information sources & formats and which search tools would be appropriate.

Interesting to note however, is that the students were more familiar with search engines like Google than with other search tools like Library Catalogues and Databases. This raises valid questions about the effectiveness of the Library Orientation/User training programs (where it is expected that the students received some instruction on how to use their libraries' Catalogues and the discipline-specific databases accessible to them). The findings however confirm what previous studies revealed concerning students' preference of generic search engines, like Google, over their Libraries' catalogues and discipline-specific databases. Google's popularity among students is attributed to its flexibility and ease

of use: "Google is smarter at finding what you're searching for. If you spell it wrong it knows what you mean whereas the library search isn't as effective. Google is also easier to manipulate in terms of putting in different word combinations to find what you're looking for", (Georgas, 2013:170).

However, an information literate student must be familiar with a variety of search tools and capable of knowing when and how to use them depending on the information sought. (Georgas, 2013;Omar, Haji & Mwitumbe, 2014) The noted difficulties by most of the students in determining how much information is required, is most likely a consequence of their failure to adequately identify their information needs. Usually, questions or problems are often self-limiting and tasks often specific enough to offer cues on the information required to address them. Inability to follow these cues affects the efficiency & effectiveness of the information search process and is a sign of lack of Information Literacy skills.

Phrase searching and scanning of contents pages of information resources & indexes were the most popular search strategies among the students. It was noted that Library Catalogues (and Librarians) were not highly preferred, neither were the time-honoured Boolean Logic and Truncation strategies, which are useful in narrowing or widening searches. Further, majority of the students rarely look at the originality of the information as a means of widening or narrowing their search, preferring instead the more convenient options of Publication date, location and format. It can be inferred from the findings that the students prefer to use strategies that may not require a lot of effort or take more time to get results, especially when overwhelmed by tasks and tight deadlines. They may view the rigidity of using Controlled vocabularies Library Catalogues as well as the understanding required for effective use of Truncation or Boolean Logic as 'inconvenient. This agrees with Lowe (2018) who explained this behaviour by referencing Zipf's Principle of Least Effort. Further, the students might also not possess the knowledge and skills needed to use certain strategies or techniques. This is supported by Echem & Udo-Anyanwu (2018) and agrees with findings by Gowri & Padma (2018) and Anafo & Filson (2014) who both found that students were not particularly keen on in using a variety of search strategies to broaden or limit their search, but does not agree with Baro & Fyneman (2009).

Findings show that majority of the students rated their ability to able to use a variety of retrieval tools and resources, convert their search strategies to work in different resources, refine a search strategy based on previous result sets and sort and manipulate results as "good". Being versatile in the information search process helps students to overcome challenges such as too few or too many results, limited access to resources. Thus the findings give indication that majority of the students are well able to locate a variety of information resources and access information contained to apply to their needs. Findings agree with Gowri & Padma (2018), contradicts Anafo & Filson (2014) and Mutula, Wamukoya & Zulu (2004) whose students' ability to locate and retrieve information was poor.

Majority of the students rated their ability to assess the quality information found as "good". However, when "quality" was broken down to specific attributes, findings show that the students said they were least skilled in assessing the accuracy, objectivity and reputation & credibility of the source, ranking their abilities as between "poor" and "fair". The fact that majority of the students said they were least skilled in reading critically as well as identifying key points in the information, confirm that they lack critical evaluation skills because one needs to apply critical thinking when making decisions on the validity of an information source and the potential usefulness of the information contained (Head & Eisneburg (2010). It is clear that the major attribute the students were concerned with in terms of "quality" was the relevant of the information to their need. However, compromised quality has huge bearing on the effectiveness of the information for problem solving or decision making. These findings are similar to Head & Eisneburg (2010), Gowri & Padma (2018) Anafo & Filson (2014) and Kimani & Onyancha (2015).

From the findings, all the students demonstrated an understanding of what plagiarism referred to by indicating acts that constitute the plagiarism. Further, the majority of the students had difficulties in using the referencing styles prescribed by their institution of learning, with nearly all of them stating that they were better skilled at citing printed sources than electronic resources ones. An awareness of what plagiarism is a positive thing and gives hope in the fight against the vice. However, mere knowledge is no guarantee that the students do not engage in plagiarism. In order for deterrence to be achieved, knowledge of right and wrong needs to be coupled with knowledge of consequences. Thus

the need for institutional policy on plagiarism is to be handled. These findings agree with Mutula, Wamukoya & Zulu (2004) Anafo& Filson (2014).

Findings showed that majority of the students were well able to synthesise information gained with existing knowledge, summarise as well as analyse and present the information appropriately. This indicated that they were well able to create new knowledge that can then be applied to address the information need. Further, skills like the ability to detailed or summarise the knowledge (as need may dictate) and 'package' or present in an appropriate format facilitate effective communication to others. The findings indicate that nearly as many were lacking in this areas as those that were well skilled. Most of the students were also better skilled at presenting the knowledge verbally than in written formats. It is thus safe to conclude that these students possibly had challenges turning in well thought-out and articulated course assessments such as written tests, assignments or essay-type examinations and final year research papers, but did much better in class group discussions or tutorial/seminar presentations. These findings are at variance with Gowri & Padma (2018).

6.0 Conclusion

Information literacy is critical in today's information and knowledge-rich society as it enables information seekers to know when the need information, where to find it, how to find it and how to use it appropriately. In H.E. IL skills are a game-changer, as they allow students to take greater control of their learning.

The study sought to investigate IL among students in selected H.E. Institutions in Lusaka and found some evidence of such skills among the students in the study. Some of the key findings were that most of the students had difficulties in identifying their need for information because they did not take time to clearly understand the question or problem. The study also found that while knowledgeable about different types of information sources & formats, they were not very familiar with a variety of search tools other than generic search engines like google. The study further found that the students' chose the most convenient of search strategies and search tools, which they used consistently to retrieve information resources. Finally, the study found that most students used relevance as their main evaluation criteria, had difficulties citing electronic sources and were better able to present their information in verbally as opposed to written format.

The study has to agree with Abdelrahman, Jwaifell, & El-Subhieen, (2014) that library orientation alone is not enough to make one information literate, and that most students colleges and university are not as information literate as they need to be. There is a need to look at how IL can be included or integrated into academic curricula.

7.0 Recommendations

1. As a short term measure, the study recommends a re-designing of library orientation programs offered by academic libraries, both in terms of scope and delivery mode to make them more effective in IL instruction.
2. The study also recommends that H.E. Institutions facilitate collaborative activities between academic librarians and academic faculty through the formulation of IL policy frameworks and the designing of IL courses, where appropriate.
3. As a long term measure, the study recommends the design and implementation of institution-wide multi-structured IL initiatives aimed at making IL part and parcel of the students' world of learning.
4. The study also recommends that further studies be undertaken to ascertain the status of IL in the education sector in Zambia

References

- Akakandelwa, A. (2010). Status of information literacy in Zambia. In: SCECSAL. Strengthening information literacy interventions: using creative approaches to teaching and learning. 5 December 2010. IDS/ITOCA, Brighton, UK.
Available from: <https://www.itoca.org/articles/1575832588BotswanaCompressed5.pdf>
- Association of College and Research Libraries (ACRL). (2000). Information literacy standards for higher education. Chicago, IL: American Library Association (ALA). [Online]
Available from: <http://www.ala.org/ala/acrl/acrlstandards/standards.pdf>
- Anafo, Peter & Filson, Christopher. (2014). Promoting Information Literacy among Undergraduate Students of Ashesi University College. *Library Philosophy and Practice*. 2014. Available from: <https://digitalcommons.unl.edu/libphilprac/1032/>
- Abdelrahman, M., Jwaifell, M., & El-Subhieen, E. (2014). Information Literacy: Study of Incoming First-year Undergraduates Students who major in English Language at Al-Hussein Bin Talal University. Available from: https://www.academia.edu/25092406/Information_Literacy_Study_of_Incoming_First-year_Undergraduates_Students_who_major_in_English_Language_at_Al-Hussein_Bin_Talal_University
- Averill, D., and Lewis N. (2013). Students and Information Literacy: High School and Postsecondary Perspectives. *Maine Policy Review*, 22.1 (2013): 114 -117. Available from: <https://digitalcommons.library.umaine.edu/mpr/vol22/iss1/28>
- Badke, William, (2010). Foundations of information literacy: Learning from Paul Zurkowski. *Online*. Vol 34. No1 48-50. Available from: https://www.researchgate.net/publication/293703989_Foundations_of_information_literacy_Learning_from_paul_zurkowski
- Baro, E. & Fyneman, B. (2009). Information literacy among undergraduate students in Niger Delta University. *The Electronic Library*, 27. 659-675. 10.1108/02640470910979606. Available from: https://www.researchgate.net/publication/220677069_Information_literacy_among_undergraduate_students_in_Niger_Delta_University
- Baro, Endouware & Ubongu (2011). Awareness and use of online information resources by medical students at Delta State University in Nigeria. *Library Hi Tech News*. 28. 11-17. 10.1108/07419051111202655. Available from: https://www.researchgate.net/publication/235277588_Awareness_and_use_of_online_information_resources_by_medical_students_at_Delta_State_University_in_Nigeria
- Chisunka-Mwila CP, Daka KL., Mwiinga-Mwanachingwala TM.& M'kulama ACM. (2018). The Provision of Library Services to Primary School. *Library and information Association of Zambia Journal* 3 (1 & 2), 77-89. ISSN: 2414-2700
- Chamani, G. (2018). Exploring First Year Undergraduate Students- Information Literacy Skills: Experience at the Faculty of Management, University of Peradeniya, Sri Lanka. *SRELS Journal of Information Management*. 55. 309-314. 10 Available from: https://www.researchgate.net/publication/330731653_Exploring_First-Year_Undergraduate_Students_Information_Literacy_Skills_Experience_at_the_Faculty_of_Management_University_of_Peradeniya_Sri_Lanka.17821/srels/2018/v55i6/131122.
- Dadzie, S. P. (2008) Promoting Information Literacy: The role of the librarian. *INASP Newsletter*, pp.2 – 3.
- Echem & Udo-Anyanwu Echem. (2018). Information Retrieval Tools and Library Physical Environment as Correlates of Library Utilization by Students in Rivers State University Library, Nigeria. (2018). *Library Philosophy and Practice (e-journal)*. 1772. Available from: <https://digitalcommons.unl.edu/libphilprac/1772/>
- Gross, Melissa & Latham, Don. (2009). Undergraduate Perceptions of Information Literacy: Defining, Attaining, and Self-Assessing Skills. *College & Research Libraries*, 70. 10.5860/crl.70.4.336. Available from: https://www.researchgate.net/publication/237772080_Undergraduate_Perceptions_of_Information_Literacy_Defining_Attaining_and_Self-Assessing_Skills
- GRZ. 2006 Vision 2030. Ministry of National Development and Planning. Available from: https://www.mndp.gov.zm/?wpfb_dl=89
- Georgas, H. (2013). Google vs. the Library: Student Preferences and Perceptions When Doing Research Using Google and a Federated Search Tool. *CUNY Academic Works*. Available from: https://academicworks.cuny.edu/bc_pubs/81
- Gowri P. & Padma, P. (2018). SCONUL Seven Pillars Model to Test the Information Literacy Skills of Engineering Students: A Case

- Study(2018). *Library Philosophy and Practice* (e-journal). 1996. Available from: <http://digitalcommons.unl.edu/libphilprac/1996>
- Head, A., & Eisenberg, M., (2010). Truth Be Told: How College Students Evaluate and Use Information in the Digital Age. *SSRN Electronic Journal*, 10.2139/ssrn.2281485. Available from: https://www.researchgate.net/publication/274917529_Truth_Be_Told_How_College_Students_Evaluate_and_Use_Information_in_the_Digital_Age
- Hepworth, M., (1999) A Study of Undergraduate Information Literacy and Skills: The Inclusion of Information Literacy and Skills in the Undergraduate Curriculum. 65th IFLA Council and General Conference Bangkok, Thailand, August 20 - August 28, 1999. Available from: https://www.researchgate.net/publication/279689067_A_Study_of_Undergraduate_Information_Literacy_and_Skills_The_Inclusion_of_Information_Literacy_and_Skills_in_the_Undergraduate_Curriculum
- Kimani, H.N & Onyancha, OB. (2015). Information literacy skills among incoming first-year undergraduate students at the Catholic University of Eastern Africa in Kenya. *Innovation*; 51: 23-45 Available from: http://uir.unisa.ac.za/bitstream/handle/10500/22028/Kimani%20%26%20Onyancha_Innovation_2015.pdf?sequence=1&isAllowed=y
- Lowe, M., Maxson, B., Stone, S., Miller, W., Snajdr, E., & Hanna, K. (2018). The Boolean is Dead, Long Live the Boolean! *Natural Language versus Boolean Searching in Introductory Undergraduate Instruction*. *College & Research Libraries*, 79(4), 517. Available from: <https://doi.org/10.5860/crl.79.4.517>
- Lwehabura, M., & Stilwell, C., (2008) Information literacy in Tanzanian universities: Challenges and potential opportunities. *Journal of Librarianship and Information Science*, 40 (3), 179-191 Available from: <http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.926.364&rep=rep1&type=pdf>
- Lawal, V., Underwood, P., Lwehabura, M., & Stilwell, C., (2008). Information literacy for higher education institutions in Nigeria and Tanzania: efforts and prospects for educational reform in teaching and learning. *Innovation: journal of appropriate librarianship and information work in Southern Africa*. 41. 42-61. 10.4314/innovation.v41i1.63628. Available from: https://www.researchgate.net/publication/268808616_Information_literacy_for_higher_education_institutions_in_Nigeria_and_Tanzania_efforts_and_prospects_for_educational_reform_in_teaching_and_learning
- Mutula, Wamukoya & Zulu (2004) An Evaluation of Information Literacy Competencies Amongst Library and Information Science Students at the University of Botswana. *Journal of Interlibrary Loan, Document Delivery & Electronic Reserve*, 15:3, 77-93, DOI: 10.1300/J474v15n03_08
- Malanga & BoemoJorosi (2018). Information Literacy Skills among the Undergraduate Students at the University of Livingstonia, Malawi. *International Journal of Library and Information Services*, 7. 43-56. 10.4018/IJLIS.2018070104. Available from: https://www.researchgate.net/publication/327788608_Information_Literacy_Skills_among_the_Undergraduate_Students_at_the_University_of_Livingstonia_Malawi
- Motschnig-Pitrik, R. & Holzinger, A. (2002). Student-Centered Teaching Meets New Media: Concept and Case Study. *Educational Technology & Society*. 5. Available from: https://www.researchgate.net/publication/26392258_StudentCentered_Teaching_Meets_New_Media_Concept_and_Case_Study
- Ojedokun, AA., (2007), *Information Literacy for Tertiary Education Students in Africa*.
- Third World Information Services Limited, Ibadan.
- Omar, HA., and Mwitumbe KH. (2014) Information literacy in Zanzibar universities: Current situation and the way forward. *AM IFLA Journal*, 40 (4), 280-288, 2014. 8, 2014. Available from: https://www.ifla.org/files/assets/hq/publications/ifla-journal/ifla-journal-40-4_2014.pdf
- Twaambo, E., (2019). The Conceptualisation of Information Literacy and its Relevance to Higher Education. *Multidisciplinary Journal of Language and Social Sciences Education*, Volume 2, No. 1. Available from: https://www.researchgate.net/publication/334083930_The_Conceptualisation_of_Information_Literacy_and_its_Relevance_to_Higher_Education
- Virkus, S., (2014) *Information Literacy or Information-related Competencies*, Tallinn University. Available from: https://www.tlu.ee/~sirvir/IKM/Informationrelated_competencies_or_information_literacy/index.html