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### Students' Perspectives on the Teaching and Learning of Information Literacy and Library Skills (ILS)

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Students' Perspectives on the Teaching and  
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# **Students' Perspectives on the Teaching and Learning of Information Literacy and Library Skills (ILS)**

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## **Abstract**

Information Literacy is one of the key factors in order for one to succeed at any university. The purpose of this study was to investigate the students' perception towards the teaching and learning of Information and Library Literacy or skills ILS, at a regionally accredited university of Science and Technology in Central Botswana.

A sample size was a population of the study was going a total one hundred (100) students filled the questionnaire and ten (10) students' and ten (10) staff members were involved in the same structured interviews. The study implored the qualitative methodology, using phenomenology. All three librarians teaching TWAL students and a sample of seven (7) TWAL department members were interviewed regarding the teaching and learning of ILS. Students from the College of Science and those from College of Engineering were given a questionnaire to fill. A questionnaire/interview was administered.

The outcomes of the study highlighted that the relationship is very beneficial to students as they learn a lot how to use the library and access the resources in the library, at the same time learning academic literacy skills. The challenges encountered are that the library staff member and the TWAL staff members need to improve their working relationship for the good of the students.

**Keywords: Perceptions, Teaching, Learning, Library Skills, Information Retrieval skills, Search Terms, Research, Botswana**

## **1.0 Introduction**

Information literacy is usually described as the ability to locate, manage and use information effectively for a range of purposes (Bruce, 1997). While the Association of College and Research Libraries defined information literacy as “a set of abilities requiring individuals to recognize when information is needed and have the ability to locate, evaluate, and use effectively the needed” (2000,p.35). Bruce (1997) explains that in order for one to be information literate they must also possess some knowledge of Library skills, Information Technology literacy skills, information skills, and computer literacy skills. Coupled with these skills one must also be willing to learn how to learn. Learning is never ending process. We are now in the knowledge and information age, and as result there are volumes and volumes of information found in various formats posing a problem for students to be able to get relevant, accurate, and reliable information they need (Azmi, 2006). It is therefore very crucial for a student to be able to acquire the most basic skill and knowledge in order to handle this too much information. Carey (1998) wonders how a student could be able to choose information that is most appropriate for his needs from a seemingly unlimited number of resources. The motivation for carrying out this research was prompted by the need students have regarding finding relevant resources efficiently. This research is aimed at helping students acquire the skills for problem-solving of getting information resources they need.

## **2.0 Background to the study**

This study was enhanced by a partnership between the department of Academic Literacy, and Social Sciences (ALSS) and the Botswana International University of Science and Technology (BIUST) Library. Mullins (2014) asserts that “teaching information literacy skills and knowledge is a critical aspect of academic librarianship ... from time in memorial, librarians and instructional designers or lecturers in universities and colleges worked together

to develop effective instructional materials for information literacy and library skills (p. 1). Based on this information, it is with this reasoning that the researcher decided to find out from students what they thought of the course as it was offered in partnership with the University library.

The Director of the department of Academic Literacy and Social Sciences recognized the importance of integrating information literacy instruction and resources within their academic courses and approached the Library Director in order for the two departments to form a partnership. They both agreed on a partnership on which they would be library– and ALSS collaboration and information literacy integration. According to Wendell, Gavin and Canfield (2004) “information competencies cannot be learned in a vacuum; they must be used often and within a variety of curricular contexts.” Based on this premise the information Literacy component was then infused in the Technical Writing and Academic Literacy (TWAL) curriculum. Information skills are normally part of the service that an academic library provides reiterated (Mccaskie, 2004). Both administrators agreed that their staff members will meet and design the curriculum of the Information Literacy course. A similar model was practised in Australia in a model call the IDEA Model which also integrated information literacy instruction into academic courses; this is not a new phenomenon (Mullins, 2014).

### **3.0 Research Questions**

The questions that this study is mainly focusing on are:

1. Do ALSS and BIUST Library partnership improve and enhance student learning of ILS?
2. Will students who are taught by both Academic Literacy and Library staff report that they understand ILS better?
3. How do students’ perceive their learning of ILS?

#### 4.0 Theoretical Framework

The theoretical framework of this study is based on the theories of Bruce’s model of the seven faces (conceptions) of information literacy (Bruce, 1997), and the theory of cognitive constructivism a tenet of constructivism developed by the Swiss psychologist Jean Piaget, based on the theory of cognitive development. According to Piaget (1952), the knowledge of human beings is constructed through experience, but not from the information they are given. In his theory Piaget (1952) views the learner as an active participant in their own knowledge building process, and the teacher as a facilitator of that active knowledge building process. Information literacy is seen as a construct under cognitive constructivism, whilst library skills are founded on cognitive objectivism and information skills on a mixture of the two (Johnston & Webber, 2003), making it relevant for the study.

The first theory that this research is based on is that of Bruce’s model called the seven faces or conceptions of information literacy. Below is a table that elaborates on the conceptions.

Faces	Explanations of the Faces
<b>Face one</b> The information technology conception	Information awareness, helps users stay informed, to communicate and used as a social tool
<b>Face Two</b> The Information Sources Experience	Knowledge of sources of information & ability to access them. Variety of media
<b>Face Three</b> The Information Process Experience	linked to problem-solving, decision-making and requires personal heuristic, a ‘creative art
<b>Face Four</b> The Information-Control Experience	Recognising relevant information, managing that information & making connections between information, projects, people
<b>Face Five</b> The Knowledge Construction Experience	Emphasis on learning, developing personal perspective with knowledge gained, dependent on critical thinking
<b>Face Six</b> The Knowledge Extension Experience	Personal knowledge + experience + creative insight/intuition to develop new knowledge, tasks and come up with novel solutions
<b>Face Seven</b> The Wisdom Experience	Personal quality, values and ethics Information used for the benefit of others

*Adapted from Bruce, 1997*

Secondly, this research is based on cognitive constructivism. According to Jean Piaget (1952) cognitive constructivism theory states that an individual learner is the one who makes meaning from what he/she learns. Learners then adapt, assimilate, accommodate the knowledge learned (Piaget, 1952). The reason why this theory has been chosen is because information literacy is concerned with learners' ability to locate, manage and use information effectively for a range of purposes. They will already have the knowledge of content from their various courses and would use this knowledge to find, locate and retrieve relevant information sources for their academic needs such as writing an assignment or preparing for a test to beef up their lecture content. As proposed by Piaget (1952) being able to adapt, assimilate and accommodate new knowledge is a step in the right direction for a learner to be literate.

## **5.0 Review of the literature**

### **5.1 Information Literacy in higher education**

It was important to review the literature as it was useful in defining the research objectives, and also provided a context for the research and enhanced understanding of the research findings. Bruce (2004) states that information literacy is the foundation for learning in our contemporary environment, the information age which is characterised by continuous technological and communication change. As technology and communication are rapidly developing they pose a challenge for information location, finding and retrieval. Educators are then forced to recognise that their learners need to engage with these new information environments. It calls for the integration of curriculum content to be merged with information literacy in formal learning processes. Bruce (2004) further argues that information literacy should be viewed as a fundamental factor in the quest for lifelong learning of any learner

which is the key to unlock the gates for both personal empowerment and economic development.

The importance of teaching information literacy to students in higher education is of utmost priority as students in this information age are faced with volumes and volumes of information and its difficult retrieval which has been brought about by the World Wide Web (WWW) or the internet and development of Information and communication technologies (ICT) (Azmi,2006). Universities and colleges of higher learning now are embracing the teaching and importance of information literacy as paramount tool and for effective and independent learning for their students (Bruce, 2012). Breivik (1998) posits that an educated graduate in the next century will be identified by their skill of being able to find, evaluate and apply information needed not by how much they know the factual body of information from their courses. ILS is also a factor in student success in the realm of higher education (Walker& Pearce, 2013), students' success is based on how well they are able to find and retrieve the relevant information they need for their assignments and tests. Therefore, information literacy is considered the overarching literacy essential for twenty-first century living (Bruce, 2004). It is very important that students in the STEM universities should be taught ILS.

## **5.2 Previous research on ILS**

Previous research on ILS (Breivik, 1998; Bruce, 2012; Burkhardt, 2007) all show that the teaching of ILS should take various modes such as, one-on-one, online or a combination of both. One-on-one instructional mode will not be able to satisfy the students' information need. Students these days prefer very interactive instructional and practical courses that will keep them motivated to learn. A study by Walton and Hepworth (2011) is an example that students prefer various modes of being taught ILS. These researchers conducted a research in



which they wanted to test the three interventions designed to develop the ILS curriculum of undergraduate students in their first year. In the research study they used both face to face instruction and online instruction through the use of social networking learning. They split/divided their study population into two, those doing face to face instruction and those who combined face to face with online social networking learning. According to their results, the group which learnt through blended instructional mode thus both face to face and online learning was more successful in their learning than the group which used only face-to-face instruction (Walton & Hepworth, 2011). This result therefore means that when teaching ILS, it is better to use blended instructional methods to maximise teaching and learning of students. At BIUST the face-to face approach was used to teach students ILS. The experience of information literacy education is a transferable process which if students can understand they could apply it to their everyday life, community life and workplace contexts (Bruce, 2004) **and universities should not over looked it.**

Research done by Bruce (2004) also shows the potential that information literacy has on students academic lives, she posits that it encourages learners to engage in deep learning as opposed to surface learning, it changes learners who for most times depend on their peers to become independent, self-directed and lifelong learners. Bruce further argues that learners who have not gone through information literacy education suffer from severe information anxiety; they also depend on others for knowledge access and information retrieval.

## **6.0 Research Design and Research Methodology**

According Bailey (1994) research methodologies refer to the research tools or techniques used to collect the required data. He further mentions that the most appropriate research methodology for a study should be determined by the overall purpose of the study. In this

research I would like to explore and investigate the students' perceptions towards the teaching and learning of Information and Library Literacy (ILS).

The qualitative research design was chosen for this study. Qualitative research is human oriented research thus it attempts to provide an in-depth understanding of human activities (Bailey, 1994; Baker, 1999; Bogdan, 2007; Chilisa & Preece, 2005). "Qualitative research refers to the type of inquiry in which the researcher carries out research about people's experiences, in natural settings, using a variety of techniques such as interviews, and observations and report findings mainly in words rather than statistics" (Chilisa & Preece, 2005, p. 142). The methodological approach adopted for this study is phenomenology. According to Lester (1999) the purpose of a phenomenological approach is to elucidate the specific, to identify phenomena through how they are perceived by the actors in a situation, in this case the students who are offered ILS course. Because this is a qualitative research study, it aims to gather deep information and perceptions through inductive, qualitative methods such as interviews, discussions and participant observation. Lester (1999) further states that phenomenology is concerned with the study of experience from the perspective of the individual. Phenomenological approaches are based in a paradigm of personal knowledge and subjectivity, and emphasise the importance of personal perspective and interpretation (Lester, 1999), that is why it was found appropriate for this study.

This study was further narrowed to a case study. Yin defines the case study research method "as an empirical inquiry that investigates a contemporary phenomenon within its real-life context... and in which multiple sources of evidence are used.'" (1984, p. 23). It allows the exploration and understanding of complex issues. It can be considered a robust research method particularly when a holistic, in-depth investigation is required (Bogdan & Taylor, 1975; Chilisa & Preece, 2005; & Creswell, 2007).

The research was carried out in the BUIST- Faculty of Science based on the students that researcher was teaching, and from those taught by colleagues teaching the students from the Faculty of Science also on the availability and access of the research participants. The population of the study was decided based on the student the tutor was teaching which made it easier for the tutor to have access to their learning and teaching.

### **6.1 Sample selection and Procedure**

Sampling is an important activity in research which involves selecting specific human subjects for investigation. According to Babbie and Mouton (2005) sampling involves obtaining information from a population without having to examine or question every member of that population, so that time and money may be saved. It is important to ensure that reliable information must be collected and in order to do that the sample must represent the entire range of people in the group (Baker, 1999). In this research, sampling procedure was purposive based on those students who were willing to be participants of the study. Secondly, members of both the department - Library Staff that teach the students and tutors from ALSS who teach TWAL course to students from the Faculty of Science were interviewed. This was later triangulated by administering a questionnaire to some members of the TWAL department; the selection was through random sampling.

According to Bodgan (1992) the sample size influences the accuracy with which the sample represents the population. Purpose Sampling was used, this is where “a researcher deliberately selects certain individuals from the population” (Aina, 2010, p. 344). In this case the researchers deliberately selected certain students, library staff and ALSS staff who teach students from the Faculty of Science only. The selection was based on the knowledge that they would give the information we needed. My participants were first year students from the Faculty of Science. We have 12 classes from the Faculty of Science, since the researcher

could not take all these students for study population; purposive sampling of the participants was done from this big pool. Fifty participants from the Faculty of Science were selected from the sixteen (16) specialised science disciplines in the faculty.

## **6.2 Data collection Methods**

Data collection methods refer to those instruments that are used to collect data. They are different instruments that can be used, namely, interviews, questionnaires, observations, focus groups and document analysis (Aina, 2010; Bailey, 1994; Baker, 1999; Bogdan, 2007; Chilisa & Preece, 2005). In phenomenology based research, a variety of data collection methods can be used, including interviews, conversations, participant observation, action research, focus meetings and analysis of personal texts/documents (Lester, 1999, p.4). In this study, I will use interviews, focus meeting and conversations with students and participant observations and demographic questionnaire.

The interviews and focus meetings and conversations with students were conducted, where participants were asked about their own experience of the phenomenon, which is the teaching of ILS. The interviews were semi-structured to ensure all important areas were covered but to allow new, unanticipated issues to be raised. An interview schedule was prepared but questions were sometimes rephrased and asked in a different order according to the experiences that interviewees were relating and so the questions remained relevant to each student and staff member from both departments. The interviews were recorded, transcribed and coded. Furthermore, transcriptions were made when the case study was completed, and the interviewees checked the report to ensure that no mistakes had been made. Yin (2003) recommends this approach to case studies to ensure construct validity. Participation observations were done in order to triangulate oral interviews, focus meetings and conversations with students; which the research was observing the teaching of ILS done

by Librarians during their classes in order to collect data regarding the course topics and content. In research reliability and validity are important. For a researcher to attain reliability in their study they should avoid bias or subjectivity (Baker, 1999). Validity should also be established by ensuring that the data measures what it is intended. In addition to the above mentioned data collection techniques, I will also administer a simple demographic questionnaire which includes relevant information such as age, gender, length or duration of the ILS learning experience, and other contextual information.

## **7.0 Data Analysis**

Phenomenological research generates a large quantity of interview notes, tape recordings, jottings or other records all of which have to be analysed (Lester, 1999). Analysis is also messy, as data will not be in neat categories as Lester (1999) puts it. Some of the ways to analyse data are; using narrative method, content analysis or thematic analysis. In this study, I will use thematic analysis where I will explore the themes that I derive from the interviews, participation observations and the focus meetings with students' field and those that I will derive from the reading of the literature and the data. After finishing coding, I will search for patterns and relationships of those patterns, identifying categories and will look for themes. LeCompte (2000) states that the processes of collecting and interacting with data have great impact on the choice of methods used for data analysis. It could need the researcher to make links between different parts of the discussions and observation and make patterns and establish relationships.

In this research, in order for the phenomenon to be captured (thus the perceptions and opinions of students), particular attention was paid to the students words, phrases, metaphors chosen from the students explanations as they described their experiences derived from the interview transcripts. The data was analysed line by line, word by word sometimes even

checking the meanings of words in a dictionary (Sohn, Thomas, Greenberg, & Pollio, 2017). The interview transcripts interpretations were followed by coding, then establishing patterns, categories and finally identifying themes which arose from shared context by students and tutors so that their voice can be heard as one voice. Some of these themes were revised and accepted. The purpose of the interview was to collect broad data about the students, course, and information literacy requirements and syllabus. Sohn et al. (2017) argue that the affirmation from participants that their accounts echo their lived experience is important and highly valued, so researchers should always show their participants the final report of transcriptions. Sohn et al. (2017) asserts that hearing the voices of students and ILS tutors expressing the essence of their combined lived experiences, force their concerns (ideas/opinions) to be heard.

### **7.1 Students: Back ground information**

In the first introductory part of the questionnaire, students were requested to give information concerning their areas of specialization as well as the hours per week they have to attend ILS classes. Table (1) illustrates the distribution of students over various disciplines in the Faculty of Science. As shown in the table, a total of 50 students from the Faculty of Science representing the 16 different disciplines were used for the study. It is worth mentioning in this context that registration in the ILS course is open and compulsory to all BIUST students regardless of their area of specialization, this is a compulsory course for all first, second and third year students.

**Table 1:** *Distribution of students according to discipline*

<b>Disciplines in the Faculty of Science</b>	<b>Number</b>
Biology & Bio-Technology	3
Computer Science	3
Computer Science & Software Engineering	4
Earth and Environment	3

Environmental & Analytical Chemistry	3
Environmental Science	3
Forensics	3
Geology	3
Information Science	2
Information Systems	4
Information Systems & Data Management	3
Material & Nano Chemistry	4
Mathematics & Applied Mathematics	3
Physics	3
Pure & Applied Chemistry	3
Statistics	3
<b>Total</b>	<b>50</b>

## 7.2 Variations in Course Syllabus

Although the course has a set of objectives and learning outcomes, instructors and librarians of the various course groups have adopted slightly different course syllabus depending on the level of students and also reflecting their expertise and background. However, for most topics there was an agreement which represented the core of the course.

**Table 2-** *Topics covered in the ILS course*

<b>Topics Covered by all groups</b>
Digital Libraries
Information resources
Library Catalogue
Using OPAC
Searching library databases
Information retrieval
Internet
Search engines
Formulating a search on the catalogue
Citing sources
Plagiarism
Boolean searching
Navigating the open shelves using DDC
Shelve labels
Lending or borrowing of library resources
Reference materials

## **8.0 Results and Discussion**

One result of this study is that the analysis of course components of ILS reveals that most topics have been emphasized by all ILS instructors indicating the importance of these topics to the students. The topics that were covered by most of the tutors include formulating search strategies, searching library databases, information retrieval, digital libraries, information resources especially electronic information resources and searching library OPACs as these seemed to be the most problematic areas for students. The least covered topics in the course were shelf labelling, internet search engines (because students' prefer Google) and citing sources as their tutors referred this section to academic department when they give assignments. There was a clear discrepancy among the groups concerning the depth of treatment of each component. Some classes were exposed to a detailed coverage of topics while others were not depending on the knowledge, expertise and experience of the librarian. On the other hand, more emphasis was put on information retrieval systems and bibliographic databases, library online catalogue.

Methods of delivery and assessment tools were consistent among the all groups. Assignments, tests, group work, as well as final examinations were used as the basic assessment tools in some cases class participation.

### **8.1 Students' General Opinion about the Course:**

Most of the students did agree that the course covered the most important aspect of information literacy and its contents. The students liked that it is taught in partnership with the library staff members. When asked if they benefited from the course being taught by Library or ALLSS members 97% said they liked being taught by librarians because they work there full time and know the resources better.



The course covered some of information technology related issues such as searching electronic library databases, digital libraries, from the students' perspective thought of it as being an Information Technology (IT) course. The vast majority of the students, 95%, reported that they were not exposed to the topics covered by the course previously. Moreover, students indicated that they lacked the skills necessary to conduct assignments and research papers during their high school as well as after joining the university. The majority of respondents valued the skills introduced within the course, 89% of the respondents believe that these skills should have been acquired in the school. When asked if they thought being taught ILS by Library staff was helpful, about 95% reported it was extremely helpful.

### **8.2 Impact of ILS on students' performance:**

85% of the respondents believe that the skills acquired from the course will contribute positively to their study skills during their time in the university as they were asked 'how the course will affect their performance during their study at the university and beyond. Students indicated that conducting class project research papers and assignments were areas where the course has added to their knowledge base and great impact, as it required the skills of understanding how to use the catalogue and information retrieval of those relevant library resources that students needed for carrying out their assignments.

About 74% of the students considered the skills acquired from the course as very valuable to their careers in general. 60% of the students believed that the skills will have an impact in their work places after graduation and for their personal use.

### **8.3 Competency in dealing with computers & Internet:**

Students were asked to rate their expertise in dealing with online library catalogue using the computers found in the library and using the internet, 51% of them considered themselves

as advanced users of the computers and use of internet. Students ranked the internet, searching library databases, library information resources, online public catalogue and citing sources, among the most useful topics covered in the course, this indicates that students were exposed to a variety of new topics and acquired new skills in dealing with information retrieval especially those related to searching for and finding information on the internet. According to Bruce (2017) ‘an information literate person uses a variety of information technologies and systems as information technologies make information resources available to us.

#### **8.4 Opinion regarding the most acquired knowledge and skills:**

Students were requested to express their opinion regarding the knowledge and skills acquired by various syllabi offered. The focus and discussion with students included a list of the topics covered in the course as a whole and students were to rank them under four different categories: high, average, low and not covered in the course.

Searching bibliographic databases and formulating search strategies are ranked highly by the students too. This underlines a wide consensus among the students that these skills are very crucial to them to pursue their study in their respective programs. These skills conform to those identified by ACRL information literacy standards, which state that information literate students should be able to access needed information effectively and efficiently. In addition to the importance of skills acquired from the course which students value, the students also indicated that the course enhanced their IT knowledge and skills, especially the searching of the internet and online retrieval skills.

### **9.0 CONCLUSION**

While it is the role of the university library to provide an opportunity for students to deepen their knowledge and understanding of library and information skills, it is also upon

academic departments to support and encourage their students in using library resources. This could be incorporated into the curriculum through more collaborative approaches between library, faculty and academic. In order to prepare students to be lifelong learners in the information age there must be cooperation between departments. ILs should a course that is incorporated in the basic curriculum from kindergarten so that students will be graduate and be professionally flexible and citizen who are successful.

## **10.0 RECOMMENDATIONS**

An important recommendation emanating from this study was that;

1. Lecturers, tutors and librarians in the two departments should embrace the teaching of ILS using a blended approach thus face to face and online instruction to enhance the comprehension level of their students. Students reiterated that because they live in the technology era it is convenient for them to learn online in addition to the face to face instruction they receive. Such opportunities make it possible for learners of all ages to experience the power of effective information practices.
2. The librarians should continue teaching in partnership with the lecturers to enhance understating of library skills by students.
3. Improvement of communication between librarians and faculty members, it seemed there was lack of communication.

## **11.0 Limitations of the study**

Qualitative findings, while not intended to be generalized to a population, contribute to deeper understanding of human experiences, advances in concept and theory development (Sandelowski, 2008). Findings of educational research using phenomenological methodology

can be transferable to other settings if they illuminate essential aspects of the meaning of the phenomenon that will resonate with other teachers, tutors and learners.

There will be a number of limitations for the study including site selection, population size, and few official restrictions such application for carrying out research that relate to human subjects. The study will not be able to generalise the results as I will only select fifty students in the Faculty of Science, at BIUST. This is very restrictive because the study will only be in one university, one Faculty and one course so it cannot be generalised.

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