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A Comparative Study of Information literacy skills among Students of Library and Information Science and Computer Science in Nigerian Universities

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Abstract

The study aims to compare the information literacy skills of the students in library and information science (LIS) and computer science (CS) in two universities in Nigeria. The study adopted a comparative method. Questionnaire was developed to collect data from 250 students in library and information science and computer science in two universities in Nigeria using convenient sampling technique. Findings from the study revealed differences in the information literacy skills of students in library and information science and computer science in the two universities. The study also revealed that there is significant difference between universities and information literacy skills of the students. The paper therefore recommends that the universities need to integrate 'Information literacy' as a general course for all students irrespective of discipline. Findings will inform library administrators and educators to see the need to provide practical sessions for students to acquire the information literacy skills rather than focusing on theoretical concepts only.

Keywords: Information literacy skills, library and information science, computer science, universities, Nigeria.

Introduction

Information Literacy (IL) is a necessary skill needed by students to survive in the dynamic information environment of the 21st century. Information literacy skills, according to Parang, Raine and Stevenson (2000), is a fusion of library literacy, computer literacy, media literacy, technological literacy, critical thinking, ethics and communication, which when acquired, would enable users of information to become independent lifelong learners. Information literacy skills provides users of information resources with methods by which they can cope with the huge quantity of information coming from all directions, and through all varieties of information resources. The American Association of College and Research Libraries (ACRL, 2016), in its updated version defined IL as *the set of integrated abilities encompassing the reflective discovery of information, the understanding of how information is produced and valued, and the use of information in creating new knowledge and participating ethically in communities of learning*".



In a world where an infinite amount of information is available, individuals need to develop a greater understanding of information sources and need abilities to acquire, evaluate, use and communicate information. Becoming information literate will provide essential skills, needed to become a more proficient learner in the universities, and subsequently, benefit students in both professional and personal endeavors (Ojedokun, 2007). Information literacy skills enable students to choose the best information for important decisions. Information literate individuals are knowledgeable about finding, evaluating, analyzing, integrating, managing and conveying information to others efficiently and effectively. These are students, workers, and citizens who are most successful at solving problems, providing solutions and producing new ideas and direction for the future.

Several studies have reported that the new generation of undergraduate students are far less prepared with the necessary skills to handle the new wave of this powerful information (Breivik, 2005; Hepworth & Duvigneau, 2012; Baro, 2011). With this lack of IL skills, the majority of students are finding it difficult to use information effectively. As a result, the quality academic resources available in university libraries both print and online often are overlooked and under-utilized (Anafo & Filson, 2014; Kimani, 2014; Omar, Haji & Mwitunge, 2014). Possessing information literacy skills is paramount for undergraduate students as it enable them to search, identify, select, evaluate, retrieve and use needed information. However, lack of information literacy skills may lead to poor and underutilization of information resources in university libraries. For example, Issa, et al (2015) assessed the information literacy competence of undergraduate students in University of Ilorin, Kwara State, Nigeria. The study revealed low level of information literacy competence among undergraduate students as they could not make full use of the information resources available in the university library. In the same manner, Saunders (2012) found that the majority of faculty rated students' abilities as 'somewhat strong' in six of seven skill areas. Searching the web was the only skill where students were rated as strong. The need for this study was prompted after discovering that most undergraduate students did not find relevant and current materials for their research projects and assignments. Several studies have been conducted on information literacy skills in Nigeria, but none has compared information literacy skills among students in the different disciplines. The present study aims to fill the gap. Therefore, the study aims to compare the information literacy skills possessed by students in Library and Information Science (LIS) and Computer Science (CS) in two universities in Nigeria. To achieve this, the following research questions were raised to guide the study.

Research questions

- RQ1. To what extent can the students of LIS and CS recognize their information needs?
- RQ2. To what extent can the students of LIS and CS locate information resources to use?
- RQ3. To what extent are the students of LIS and CS evaluating online information?
- RQ4. To what extent can the students LIS and CS organize, integrate, apply and communicate information.
- RQ5. To what extent are the students of LIS and CS able to cite and reference sources using the familiar referencing style.

Hypotheses

- H1. There is no significant difference between students' discipline and information literacy skills.
- H2. There is no significant difference between universities and information literacy skills of the students.

Literature review

Information literacy skills among undergraduate students

Information literacy allows us to cope by giving us the skills to know when we need information and where to locate it effectively and efficiently. IL skills enable students to master content and extend their investigations, become self-directed and assume greater control over their own learning without relying on lecture notes given by their teachers (Jorosi & Isaac, 2008). Therefore, students with adequate IL skills know how to learn because they know how knowledge is organized, how to find information and how to use this information for their satisfaction. Furthermore, when students possess adequate IL skills, their confidence and ability to work independently is improved since they can think critically, interpret information and make informed judgments (Ojedokun, 2007). For this reason, several studies have called on universities to integrate IL instruction into their curriculum for all students irrespective of discipline to acquire IL skills (Odigie et al., 2020); Baro, 2011; Okiki & Mabawonku, 2013). According to Okiki and Mabawonku, (2013) IL skills are required not only to gain access to the available information resources, but also sift from large quantities of information and utilize the most appropriate information resources. Ilogho and Nkiko (2014) conducted a study to determine information literacy search skills in five selected universities in Ogun State, Nigeria. Their findings revealed that the majority of students showed high deficiency in identifying diverse information sources including their uses.

Students in this digital age increasingly search, trust and use online information and incorporate it into their assignments and projects. While this is a logical right step to make them independent learners of tomorrow, appropriate education and guidance must be included through a well designed and developed IL curriculum in school system where the students can be taught how to look for relevant information from various sources, analyze its quality, and appropriately use the obtained information. Krubu, Idhalama and Omigie (2017) studied the lecturers' perception of students' information literacy skills and students' actual information literacy levels. The result of the study revealed a low level of IL among students. Igbo and Imo (2008) reported that undergraduate students from Nigerian universities lack information literacy skills due to lack of exposure to library use and dependent on lecture notes. Similarly, Ilogho and Nikko (2014) reported low level of information literacy and search skills among university students in Ogun State, Nigeria. Almost all of the participants in Tlakula and Fombad (2017)'s study expressed dissatisfaction with the level of training and skills acquired by them in searching the internet.

Evaluating online information resources

Helping students to locate, identify, evaluate and use information is a concern of both librarians and faculty. The study by Faix, (2014) on 'assisting students to identify sources' with the aim of looking at three classes of first-year students enrolled in an information literacy course and examines the difficulties these students encountered when attempting to identify different types of information. The study revealed that students in the study misidentified half of the sources they used, and struggled equally when identifying sources they located through library databases and the internet. The study by Currie, et al. (2010) asked undergraduate students how they determine whether a source was scholarly. A variety of statements were expressed in response to this question. The authors reported that two students actually stated that they were looking for peer-reviewed articles. Four students noted the existence and value of references and cited sources. Several students commented on the prestige of the journal that published the article, and four students believed that searching in a scholarly database leads to scholarly literature.

Studies have also argued that students' difficulty in evaluating sources stems from their lack of knowledge of different genres of information, and the differences between traditional print and online sources (Purdy 2010). The Educause Center for Analysis and Research (ECAR, 2010)'s study found

that students rated themselves slightly lower in their ability to evaluate the credibility of online information and their understanding of related ethical and legal issues. Dubicki's (2013) survey asked faculty to rate their students' competency in each of the five ACRL skills on a four-point scale ranging from 'excellent' to 'poor', with an additional option for 'don't know.' Overall, faculty rated student competency with IL skills most frequently in the 'satisfactory' or 'poor' categories. Dubicki's study reported that the weakest perceived competency of students is in the area of 'evaluating and critically assessing the information' they uncover. Dubicki reported that 39% of faculty rated students' competency in this skill as poor. The researcher therefore added that there is a critical need to build students' skills in evaluating the materials they collect.

The study by Dreisiebner and Schlogl, (2019) found that the critical evaluation of sources is addressed in all disciplines but relates to different contexts. In Singapore, Foo et al. (2013) reported an IL assessment of humanities, arts and social science students at NTU using the 2010 IL faculty developed instrument. Foo et. al found that "information evaluation" was the weakest skill among the students. Students who took IL courses offered by the university scored better. Improvement in scores was also observed across the year of study. The study by Kattenbeck and Elswailer (2019) on 'understanding credibility judgements for web search Snippets' reveals that users are very uncertain when assessing credibility and their impressions often diverge from objective judges who have fact checked the sources. The most notable finding was not how decisions were biased, rather, how inaccurate and uncertain participants were in their judgements. According to Kattenbeck and Elswailer (2019), teaching undergraduates how to critically evaluate web pages involves not only assessing aspects of authority, accuracy, objectivity, currency and coverage, but also doing so in an analytical fashion, promoting peer-reviewed and editorially reviewed resources, as well as using further sources to compare and corroborate contained facts.

Disciplinary differences in information literacy

According to Farrell and Badke, (2015) IL teaching in a discipline-specific context is considered beneficial to students, as discipline-specific contexts create motivating authentic settings and thus allow students self-reflective learning. Dreisiebner and Schlogl (2019)'s study on 'assessing disciplinary differences in information literacy' revealed that some of the disciplines focus more on international sources, whereas others focus on country and language-specific sources. And that the criteria to define the appropriate retrieval system differ among the various disciplines. The study also revealed that approaches to narrow the search results differ among the various disciplines. The research process is not identical in different disciplines and thus influences IL facilitation in a discipline-specific context. Thus, Grafstein (2002) reported that the ways in which knowledge is organized in different disciplines determine, among other things, the scope of the research questions that can be asked, the rules of evidence that are recognized within the discipline as valid for supporting claims, the kind of criteria that can be used to evaluate claims critically, the sources researchers consult to find information, and the nature of the statements that must be cited. The study by Bury (2016) found academic reading to be more important by the faculty of business, social sciences and the humanities, while abilities to search for information sources are found to be less important among the science and business disciplines.

Bury, (2011) studied faculty members at York University, Canada, with the aim of investigating IL instruction practices, attitudes and knowledge. The results showed disciplinary differences. While IL was found to be important within all disciplines, the highest agreement came from scholars of social science and the humanities. Over 60 percent of the scholars coming from these two disciplines also acknowledged considering IL skills in their own teaching, while for economics, science and law

sciences, the rate was between 30 and 40 percent. Saunders, (2012) studied IL perception among US scholars of six disciplines to show disciplinary differences among the faculty. While the lack of students' IL was a concern across all disciplines, the matter of which sources are preferred, how they are found and how they are evaluated turned out to differ among the various disciplines. In the same vein, the study by Dreisiebner and Schlogl (2019) found that the biggest similarities and differences among the disciplines are found concerning the determination of the nature and extent of the needed information, especially in the area of identifying potential sources of information. The study by Badia (2013) found that the web searching skills of biology students were rated higher than of students in English literature.

Students' knowledge of citation and referencing styles.

It is imperative that undergraduate students have an understanding of the ethical use of various information sources, in their academic environment because, issues of copyright violation have become prevalent (Kimani, 2014). One of the ways is to have skills in providing proper bibliographic referencing and citations to their academic work (Sasikala & Dhanraju, 2014). The study by Konsar and Mahmood (2013) found that a significant number of students (65%) at Air University in Pakistan, were not familiar with how to cite information resources correctly. Similarly, Anafo and Filson (2014) reported that at Ashesi University College in Ghana, 75 percent of the students were not able to identify citation associated with journal articles. In the same vein, a study on information literacy of freshmen at Illinois Wesley University by Asher and Duke (2010) reported that the majority of students (83%) had problems in accurately reading citations which in turn made it difficult for them to find and select appropriate sources. Malanga (2017) assessed information literacy skills of undergraduate education students at the University of Livingstonia in Malawi and found that the students expressed familiarity with APA referencing style and acknowledged the importance of providing citation and references to academic work to avoid plagiarism. They did not have adequate knowledge on writing proper citation and references nor familiarity with the bibliographic and reference management software tools. In Dubicki's (2013) study several faculty members mentioned that academic integrity needs to be discussed with students regarding referencing borrowed ideas and citing sources used in research, including specific format requirements.

Methodology

The study adopted a comparative method. Questionnaire was developed to collect data from undergraduate students in two universities. They are: Delta State University, Abraka and Nnamdi Azikiwe University, Awka, Anambra State. The study covered only 300 and 400 level students of Library & Information Science (LIS) and Computer Science (CS) in the two universities. Computer science department was purposely selected for inclusion because students of the computer science department with computer skills are expected to possess high level of information literacy skills. Secondly, the reason for choosing 300 and 400 level students is that at graduation level, students are expected to be information literate, as they are expected to successfully complete assignments and research projects.

Convenient sampling technique was adopted to select the respondents on a visit to the universities. The researchers personally distributed copies of the questionnaire to the respondents in their various classrooms in June 2021. In total, 250 completed and returned questionnaires with response rate of (79.1%) were used for data analysis. Data gathered was analyzed using simple percentages to answer the research questions, while chi-square (X^2) statistical tool was used to test the two null hypotheses. The results are presented in tables and charts.

Results

Table 1: Demographic details of respondents

	All respondents	UNIZIK	DELSU
Total respondents	250	115 (46%)	135 (54%)
Gender			
Male	103 (41.2%)	57 (55.3%)	46 (44.7%)
Female	147 (58.8%)	58 (39.5%)	89 (60.5%)
Department			
LIS	139 (55.6%)	77 (55.4%)	62 (44.6%)
Computer science	111 (44.4%)	61 (55.0%)	50 (45.0%)
Level of Study			
300 level	142 (56.8%)	64 (55.7%)	78 (57.8%)
400 level	108 (43.2%)	51 (44.3%)	57 (42.2%)

Results in Table 1 shows that a higher percentage of survey respondents were female 147: 58.8%), as compared to male (103: 41.2%). More than half (135 (54%) of the respondents are from DELSU, as compared to UNIZIK (115: 46%). Out of the 250 respondents, more than half (139: 55.6%) indicated as students of library & information science, while 111 (44.4%) indicated as students of computer science from both universities. A further breakdown by university revealed that, more than half (77: 55.4%) of the respondents indicated as LIS students from UNIZIK. While 62 (44.6%) indicated as students of DELSU. More than half (61: 55.0%) indicated as computer science students from UNIZIK. While, 50 (45.0%) respondents indicated as computer science students from DELSU. 142 (56.8%) respondents indicated as 300 level students from the two universities. While, 108 (43.2%) indicated as 400 level students.

Table 2: The extent to which LIS and CS students can recognise their information needs.

s/n	Ability to recognize a need for information	High		Moderate		Low	
		LIS	CS	LIS	CS	LIS	CS
1	I can recognize the kind of information I need (facts, statistics, opinions, etc.).	69 (49.6%)	45 (40.5%)	57 (41.0%)	59 (53.2%)	13 (9.4%)	7 (6.3%)
2	I can frame research topic in my area of interest.	13 (9.4%)	29 (26.1%)	47 (33.8%)	25 (22.5%)	79 (56.8%)	57 (51.4%)
3	I can recognize the type of information I need at a particular time (academic, health, political, etc).	71 (51.1%)	57 (51.4%)	48 (41.7%)	54 (48.6%)	20 (14.4%)	

Note: Library & Information Science (LIS) = 139, Computer Science (CS) = 111

Results in Table 2 shows that out of the 139 LIS respondents, almost half (69: 49.6%) of the respondents rated their ability to recognize a need for information as high. While out of the 111 computer science respondents, more than half (59: 53.2%) of the respondents rated their ability to recognize a need for information as moderate. The respondents from both departments and universities (LIS – 79: 56.8% and CS – 57: 51.4%) rated their ability to frame research topic in their area of interest

as low. More than half (LIS – 71: 51.1% and CS – 57: 51.4%) of the respondents from both departments rated their ability to recognize the type of information they need at a particular time as high.

Table 3: The extent to which students can locate information resources.

s/n	Ability to locate information resources	High		Moderate		Low	
		LIS	CS	LIS	CS	LIS	CS
1	I can locate information resources using search tools such as abstracts, indexes, catalogues and bibliographies	19 (13.7%)	33 (29.7%)	52 (37.4%)	30 (27.0%)	68 (48.9%)	48 (43.3%)
2	I can search for electronic information resources using different databases	56 (40.3%)	77 (69.4%)	71 (51.1%)	34 (30.6%)	12 (8.6%)	-
3	I can use search strategies such as keywords, and Boolean operators (such as AND, OR, and NOT).	39 (28.0%)	69 (62.2%)	40 (28.8%)	40 (36.0%)	60 (43.2%)	2 (1.8%)

Respondents were asked to kindly rate the statements in Table 3 as they reflect their ability to locate information resources. Almost half of the respondents from both LIS and CS rated their ability to locate information resources using search tools such as abstracts, indexes, catalogues and bibliographies as low (68: 48.9% and 48:43.3% respectively). More than half (71: 51.1%) of the LIS respondents rated their ability to search for electronic information resources using different databases as moderate, while majority (77: 69.4%) of the CS respondents rated their ability to search for electronic information resources using different databases as high. Majority (69: 62.2%) of the CS respondents rated their ability to use search strategies such as keywords, and Boolean operators as high, while 60 (43.2%) respondents of LIS rated their ability to use search strategies such as keywords, and Boolean operators as low.

Table 4: Evaluating online information.

s/n	Items	Very important		Important		A little important		Not at all important	
		LIS	CS	LIS	CS	LIS	CS	LIS	CS
1	The author is well known/prolific authors	78 (56.1%)	59 (53.2%)	54 (38.9%)	47 (42.3%)	7 (5.0%)	5 (4.5%)	-	-
2	The information is new/current	90 (64.8%)	61 (54.9%)	37 (26.6%)	45 (40.6%)	12 (8.6%)	5 (4.5%)	-	-
3	The information is detail rather than brief	6 (4.3%)	18	20	30	60 (43.2%)	58	53 (38.1%)	5

			(16.2%)	(14.4%)	(27.0%)		(52.3%)		(4.5%)
4	The author refers to the work of other authors (references)	69 (49.6%)	55 (49.9%)	43 30.9	41 (36.9%)	22 (15.9%)	15 (13.5%)	5 (3.6%)	-
5	The information is relevant to my need	81 (58.3%)	90 (81.1%)	48 (34.5%)	21 (18.9%)	10 (7.2%)	-	-	-

Respondents were asked to tick the level of importance when evaluating online information. Results in Table 4 shows that more than half of the respondents from both disciplines (LIS – 78: 56.1%, and CS - 59: 53.2%) indicated that the author is well known/prolific is very important when evaluating information retrieved from online sources. Majority of the respondents from both discipline (LIS – 90: 64.8%, CS – 61: 54.9%) also indicated that the information is new/current is very important when evaluating information retrieved from online sources. Majority of the respondents from both disciplines (LIS – 60: 43.2%, CS – 58: 52.3%) indicated that the information is detail rather than brief is a little important when evaluating information retrieved from online sources. Majority of the respondents from both disciplines (LIS – 69: 49.6%, CS – 55: 49.9%) indicated that the author refers to the work of other authors (references) is very important when evaluating information retrieved from online sources. Majority of the respondents from both disciplines (LIS – 81: 58.3%, CS – 90: 81.1%) also indicated that the information is relevant to their need is very important when evaluating information retrieved from online sources.

Table 5: The extent to which students of LIS and CS can organize, integrate, apply and communicate information.

S/N	Ability to organize, integrate, apply and communicate information.	High		Moderate		Low	
		LIS	CS	LIS	CS	LIS	CS
1	I can organize, apply and communication information to others.	23 (16.5%)	41 (36.9%)	67 (48.2%)	70 (63.1%)	49 (35.3%)	-
2	I can use information retrieved to solve a problem	45 (32.4%)	47 (42.4%)	79 (56.8%)	53 (47.7%)	15 (10.8%)	11 (9.9%)
3	I have the ability to summarize ideas from consulted information resources	25 (17.9%)	44 (39.6%)	88 (63.4%)	57 (51.4%)	26 (18.7%)	10 (9.0%)
4	I can incorporate newly gathered information with previous information	50 (35.9%)	42 (37.8%)	71 (51.2%)	58 (52.3%)	18 (12.9%)	11 (9.9%)
5	I can create new knowledge based on existing information	39 (28.1%)	39 (28.1%)	67 (48.2%)	64 (57.7%)	33 (23.7%)	8 (7.2%)

Respondents were asked to rate their ability to organize, integrate, apply and communicate information. Results in Table 5 shows that almost half (67: 48.2%) of the respondents from LIS and majority (70: 63.1%) of the respondents from CS rated their ability to organize, apply and communication information to others as moderate. More than half (79: 56.8%) of the respondents from LIS and almost half (53: 47.7%) of the respondents from CS rated their ability to use information retrieved to solve a problem as moderate. Majority (88: 63.4%) of respondents from LIS and more than half (57: 51.4%) of the respondents from CS rated their ability to summarize ideas from consulted information resources as moderate. More than half of the respondents from both disciplines (LIS – 71: 51.2% and CS + 58: 52.3%) also rated their ability to incorporate newly gathered information with previous information as moderate. Almost half (67: 48.2%) of the respondents from LIS and more than half (64: 57.7%) of the respondents from CS rated their ability to create new knowledge based on existing information as moderate.

Table 6: Students knowledge and use of citation and referencing styles.

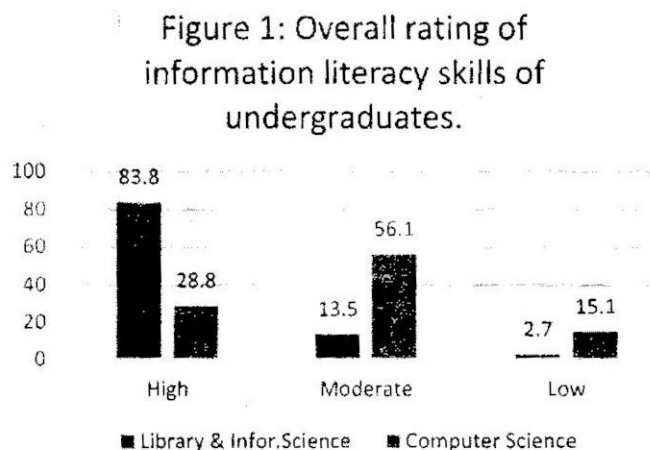
	Ability to cite and reference sources used	High		Moderate		Low	
		LIS	CS	LIS	CS	LIS	CS
1	I can correctly paraphrase ideas to avoid plagiarism	48 (34.5%)	29 (26.1%)	70 (50.4%)	52 (46.8%)	21 (15.1%)	30 (27.0%)
2	I have the ability to reference authors whose ideas were used in my research using referencing styles (APA, MLA, Harvard, Chicago, etc.).	31 (22.3%)	12 (10.8%)	15 (10.8%)	47 (42.4%)	93 (66.9%)	52 (46.8%)

Respondents were asked to rate their ability to cite and reference sources used. Results in Table 6 shows that a little above half (70: 50.4%) of the respondents from LIS and almost half (52: 46.8%) of the respondents from CS rated their ability to correctly paraphrase ideas to avoid plagiarism as moderate. Majority (93: 66.9%) of respondents from LIS and almost half (52: 46.8%) of the respondents from CS rated their ability to reference authors whose ideas were used in their research using referencing styles as low.

Table 7: Overall rating of the level of information literacy skills of the students.

	Discipline	High	Moderate	Low	Total
1	Library & Information Science	93 (83.8%)	15(13.5%)	3 (2.7%)	111
2	Computer Science	40 (28.8%)	78(56.1%)	21(15.1%)	139
	Total	133	93	24	250

Figure 1: Overall rating of information literacy skills



Overall information literacy skills of the students in LIS and CS as shown in Table 7 and Figure 1 reveals that more than half (78: 56.1%) of the respondents from LIS rated their overall information literacy skills as high. While, majority (93: 83.8%) of the respondents from CS rated their overall information literacy skills as moderate.

Testing of Hypothesis

Testing hypothesis 1

Hypothesis 1 states that there is no significant difference between students' discipline and information literacy skills. In testing the above hypothesis, the responses from the overall rating of the level of information literacy skills of the students in Library & Information Science and Computer Science were analyzed and presented in Table 8. In Table 8, the X^2 calculated of 75.2 is greater than the X^2 critical of 5.99, the null hypothesis tested is therefore rejected. This implies that there is significant difference between students' discipline and information literacy skills. Arising from the results, it could be that students from library and information science are more information literate than their computer science counterparts.

Testing Hypothesis 2

Hypothesis 2 states that there is no significant difference between universities and information literacy skills of students. In testing the above hypothesis, overall rating of information literacy skills of students from Delta State University and Nnamdi Azikiwe University were analyzed and presented in Table 9. In Table 9, the X^2 calculated of 57.5 is greater than the X^2 critical of 5.99, the null hypothesis tested is therefore rejected. This implies that there is significant difference between universities and information literacy skills of the students.

Table 8: Summary table of X^2 analysis showing the difference between student's discipline and information literacy skills.

Discipline	High	Moderate	Low	Total
Computer Science	40 (73.95)	78 (51.71)	21 (13.34)	139
LIS	93 (59.05)	15 (41.29)	3 (10.66)	111
Total	133	93	24	250

Note: X^2 calculated = 75.2, X^2 critical = 5.99, df = 2, level of significance, 0.05

Table 9: Summary table of X^2 analysis showing the difference between the universities and information literacy skills of students.

Universities	High	Moderate	Low	Total
Unizik	87(61.18)	14(42.78)	14 (11.04)	115
Delsu	46 (71.82)	79 (50.22)	10 (12.96)	135
Total	133	93	24	250

Note: X^2 calculated = 57.5, X^2 critical = 5.99, $df = 2$, level of significance, 0.05

Discussion of findings

The extent to which students can recognise their information needs.

With regard to students' ability to identify and address their information needs, the study revealed that almost half of the LIS students rated their ability to recognize the kind of information they need (facts, statistics, opinions, etc.) as high. While more than half of respondents from CS rated their ability to recognize the kind of information they need as moderate. The ability to frame research topic in their area of interest was rated by more than half of the respondents from both departments as low. This shows that the students have difficulty in framing research topics for their projects as final year students. This calls for more training on research to enable them complete their research work at the final level.

More than half of the respondents from both departments rated their ability to recognize the type of information they need (academic, health, political, etc) at a particular time as high. This shows that the students at this level knows that they need academic information to complete their academic work. This finding agrees with the findings of Dubicki's (2013) study which revealed that the strongest perceived skill that students possess is an ability to 'identify and address the information need', with 41% of faculty rating their competency level as 'excellent' or 'good'. According to Dubicki, this should be expected since faculty define the assignment for students and are available to help students develop their topics and research questions.

Students ability to locate information resources

Concerning students' ability to access information effectively and efficiently by finding information from various library sources, finding appropriate web sources, modifies search to broaden or narrow term, the study revealed that almost half of the respondents from both LIS and CS rated their ability to locate information resources using search tools such as abstracts, indexes, catalogues and bibliographies as low. More than half of the LIS respondents rated their ability to search for electronic information resources using different databases as moderate, while majority of the CS respondents rated their ability to search for electronic information resources using different databases as high. Majority of the CS respondents rated their ability to use search strategies such as keywords, and Boolean operators as high, while almost half of the respondents of LIS rated their ability to use search strategies such as keywords, and Boolean operators as low. This shows that students in computer science more effectively use databases to retrieve information than their LIS counterparts. This may be why Moyo and Mavodza (2016) suggested that, IL skills training should be preceded by training in computer skills as a way of empowering students in proper information retrieval. Dreisiebner and Schlogl, (2019) also found that databases appear to be the most important information sources in most of the disciplines, more precisely in science-related disciplines.

Evaluating online information.

The current information overload requires students to validate and assess information to verify its reliability. The study revealed that more than half of the respondents from LIS and CS indicated that the author is well known/prolific, the information is new/current, the author refers to the work of other authors (references), the information is relevant to my need as very important when evaluating online information. Only, the information is detail rather than brief was seen as a little important when evaluating online information. Findings on the importance of evaluating online information are consistent with earlier studies done by Gullikson (2006); Dubicki, (2013); and Bury (2011) that evaluation and plagiarism are skills that faculty were most concerned with.

Students ability to organize, integrate, apply and communicate information.

The results show that the students from both LIS and CS rated their ability to organize, apply and communication information to others, use information retrieved to solve a problem, summarize ideas from consulted information resources, incorporate newly gathered information with previous information, and create new knowledge based on existing information as moderate. This finding agrees with the findings from the study by Malanga (2017) who reported that the students of University of Livingstonia, Malawi demonstrated high deficiency in identifying diverse information sources including using information which is an indication that they possessed moderate IL skills on types of information sources and how to integrate what they have retrieved to solve a problem. Students need to be information literate to enable them demonstrate the ability to use information effectively for a specific purpose by summarizing, synthesizing information from a variety of sources, integrates quotations and paraphrasing, and communicates information gathered effectively. This therefore calls for a collaborative effort between librarians and faculty to effectively equip students with the ability to organize, integrate and communicate information. This can be done by building how students can organize and integrate information into their assignments.

Knowledge and use of citation and referencing styles

Using information ethically and legally entails understanding plagiarism, selecting and using appropriate documentation style (APA, MLA, Harvard). The study revealed that almost half of the respondents from both LIS and CS rated their ability to correctly paraphrase ideas to avoid plagiarism to be moderate. While more than half of the respondents from both LIS and CS rated their ability to reference authors whose ideas were used in their research using referencing styles (APA, MLA, Harvard, Chicago, etc.) as low. This shows that most of the students do not know how to cite and reference sources used in their assignments and research works. The findings are similar to those of Merkely (2011) who reported that 45% of the students in Canada were not able to write proper citation, while 28% of them identified the correct citation. In the same vein, Konsar and Mahmood (2013) also noted that a significant number of students (65%) at the Air University in Pakistan were not familiar with how to cite information resources correctly.

Overall information literacy skills

The rating of the overall information literacy skills of the students in LIS and CS revealed that the students from LIS are more information literate than their CS counterparts. The reason for the difference could be that at the department of LIS in UNIZIK, information literacy course is being taught as a standalone course in the curriculum while it is not so in the department of CS students. Thereby

giving LIS students advantage of acquiring skills to locate and retrieve different online resources. Hypothesis one tested also revealed that there is significant difference between students' discipline and information literacy skills.

Hypothesis two tested also revealed that there is significant difference between universities and information literacy skills of the students of both LIS and CS. The 'use of library' taught as part of the general course offered by all fresh students in most universities in Nigeria (Baro, 2011) is not enough to equip students with information literacy skills. The universities need to integrate 'Information literacy' courses into the curriculum as recommended by several studies (Wema, 2006; Baro, 2011; Okiki & Mabawonku, 2013).

Conclusion

The self-rating of the level of information literacy skills of the undergraduate students in Library and Information Science and Computer Science in the two universities revealed differences in the information literacy skills. The overall rating of the information literacy skills of the students in LIS and CS revealed that the students in LIS are more information literate than their CS counterparts. Undergraduate students need computer literacy skills for them to be able to navigate the online public access catalogues (OPACs) to locate resources in libraries, and also use different databases retrieve information. The core skills of using computers, navigating the internet, and having access to different databases and institutional repository theses and dissertations are essential to success. Presently, undergraduate students who utilize online research and display computer skills are more likely to succeed in their academic pursuit. The study therefore recommends that for universities to effectively provide information literacy training, they should integrate the course 'information literacy' into the curriculum. Students can also be equipped with information literacy skills (such as locating information resources, using different databases) by assisting them one-on-one on their visit to the reference desk for assistance.

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