

Original Research

Assessing Information Literacy Skills of Teacher Trainee Students: Experiences from a Ghanaian College of Education

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Abstract

Information literacy is an essential skill of the 21st century in pursuing information and knowledge. Incorporating it into the College of Education curriculum should be an integral education component. A survey research approach was used to identify different information literacy skills possessed by 83 Level 200 students in a Ghanaian College of Education. The study's significant findings disclosed that most students are not used to Boolean operators and truncation to retrieve information. It also emerged that students are trained in information literacy skills in research methodology, library instruction, and the use of computers. Challenges faced by the students in learning information literacy skills are overcrowded lecture halls and insufficient learning materials. The study adds to the existing literature on information literacy and indicates the urgency, relevance, and need for all Colleges of Education in Ghana to integrate the course into their curriculum.

Keywords: Information Literacy, Lifelong Learning, Teacher Trainee Students, Ghana.

Introduction

Information is always regarded as a crucial commodity to every individual in a country, irrespective of their occupation, religion, educational background, and disability. However, information overload has increased the challenges in its effective use. Access to timely information is an attribute of living well. It is important to access the required information, the place to acquire it, the method used to choose, evaluate, and how to apply it to solve a problem at hand effectively and efficiently (Aflab & Singh, 2017). Literacy means reading and writing. The meaning of literacy goes further to incorporate the skills to use language and information from different sources in various formats. Students work effectively with information using it from pre-school through post-secondary education (Alagu & Thanuskodi, 2018). Aflab and Singh (2017) indicated that the ability to read and write is not enough and cannot help people cope with this era of information overload; people must, therefore, be equipped with the necessary skills to evaluate and use information effectively. They defined information literacy

(IL) to encompass variables like library skills, information skills, reference skills, electronic searching, information retrieval, and information managing skills.

Omeluzor, Bamidele, Onuha and Alarape (2013) indicated that IL is the ability to be aware of when one needs information and to locate, synthesize, assess, and use it effectively to satisfy the required information. The American Library Association describes IL as the “ability to identify the needed information, its location, evaluate and use it effectively to meet one's needs” (ACRL, 2020). Singh (2015) also labeled IL as a skill of searching, finding, selecting, analyzing, and synthesizing information. The ultimate aim of IL is to improve critical information use by individuals. It is an influential guard for life-long exposure. It runs through all subject areas, educational settings, and all levels of learning. IL helps students know the standards used in assessing the credibility of a website, use search techniques to obtain the required and needed information, read text, select main ideas, and have control over their learning (Hadiamni & Rajgoli, 2010). The main focus of academic institutions is to promote lifelong learning and offer continuous improvement in students’ lives during and after school.

In their study, Olubiyo, Ogunniyi, Ademilua and Akanmidu-Fagbemi (2019) indicated that librarians have advocated information literacy in the form of users’ education for many years. They further showed that administrators, educators, and other stakeholders in academic institutions have seen the need to incorporate IL programs in their curricula. Swapna and Biradar (2017) also, in their study, reported that academic libraries have long trained their users on library usage, the location of library information materials, and the techniques used to retrieve books from the shelves through library orientation and user education. They further indicated that information can be accessed in different formats due to information overload, and students need skills to access them. The library provides information resources in academic institutions to strengthen teaching, learning, research, and knowledge dissemination. The library needs to train its readers to acquire skills to optimize the use of library resources. This objective can be realized through a formal IL program for all library users.

In their research, Chukwudi, Chewhoma and Chinemerem (2015) indicated that an academic library has the mandate to provide information resources to support the core objectives of its parent institution to improve teaching, learning, research, and knowledge dissemination. They also indicated that the library staff should teach library users how to evaluate information sources and their usefulness to improve learning outcomes. They further reported that due to information overload, academic libraries have introduced IL programs into university curricula for students to improve their searching skills, meet their academic and social needs, and engage them in life-long learning.

Issa, Amsuan, Olarongbe, Igwe and Oguntayo (2015) and Olubiyo et al. (2019), in their respective studies on information literacy skills, reported that the IL program has played an essential role in enhancing students’ searching capabilities. They further stated that the IL program should be implemented by library professionals so that it will help prepare students to be life-long learners.

Based on observations from librarians of Colleges of Education in Ghana, most students who approach them for inquiry and assistance are ignorant of exploring, evaluating, and using information to achieve a specific purpose. Literature abounds on IL skills among university students within and outside Ghana (Baro, 2010; Cordell, 2013; Asiedu, Plockey & Kordie, 2020; Guo & Huang, 2021). However, few studies (Yeboah & Owusu-Ansah, 2020; Ozor & Toner, 2022) have focused on IL skills among Colleges of Education students in Ghana.

Therefore, this study has been carried out to examine the IL skills of Level 200 students studying in one of Ghana's Colleges of Education. The aim is to empirically add to the literature and raise awareness of the concept's relevance and the need for all Colleges of Education (formerly Teacher Training Colleges) in Ghana and beyond to integrate the course into their curriculum.

Study Area

The institution under study was established in 1922 by the Methodist Church in Aburi and moved to Kumasi in 1924. Primarily, it was founded to train teachers, catechists, and ministers. The College was the first higher institution in the Northern sector of Ghana. During that time, 74, the student population comprised seven students from ministerial training, 48 student teachers, and 19 student catechists. In 1930, the College enrolled female students to be trained as teachers. The College membership shot up to 135 in 1930. Currently, the College has one thousand two hundred and fifty-four students comprising 417 Level 100, 418 Level 200, and 419 Level 300 students. In 2012, the Colleges of Education Act (Act 847) was passed to give legal support to the conversion of all teacher training colleges in Ghana to Colleges of Education. The College started awarding the following certificates to its graduates: 2-year Cert 'B'; 4-year Cert 'A'; 2-year Post-Secondary Cert 'A'; 3-year Post-Secondary and Cert 'A'; Diploma in Basic Education (DBE) and now B. Ed in education. It is affiliated with Kwame Nkrumah University of Science and Technology, Kumasi. The College's alumni have contributed tremendously to the nation's building.

Objectives of the Study

- To examine the information literacy skills possessed by students.
- To identify the search techniques students use.
- To identify the challenges students face in learning information literacy.

Literature Review

Information Literacy (IL) is essential and needs to be integrated into the curriculum of higher education students at all levels to help prepare them to be life-long learners. Bothma, Cosijn, Fourie and Penzhorn (2014) indicated that students cannot study and know all in their field. However, an information-literate person tends to become a life-long learner. Being information literate, one can be versatile in social, economic, political, educational, and cultural aspects of life.

Alagu and Thanuskodi (2018) opined that the increase in information due to the introduction of information communication technology requires students to undergo training, which will provide a better understanding of information literacy. They further intimated that information literacy will enable students to obtain library, media, computer, research, and problem-solving skills.

A study conducted by Adeleke and Emeahara (2016) on IL recommended that the course be introduced into the curriculum of postgraduate students. Issa et al.'s (2015) study also indicated that most students lacked IL skills. The authors, however, proposed that university management should include IL courses in the university curriculum and allow the University Librarian to teach the students at all levels. Anafo and Filson (2014) also added that IL skills support lifelong learning, protect the ethics of information resources, and help students know

the copyright law.

Ilogho and Nkiko (2014) studied IL skills among students of Ogun State, Nigeria, private universities. Their findings confirmed that most students were ignorant to the extent that they searched library holdings using Google and Yahoo search engines. They established that students lack search skills and suggested that IL course needs to be embedded in the university curriculum to improve students' searching skills, which has the propensity to prepare them to be lifelong learners. Chinyere (2014) also indicated that user education instruction helps students acquire the skills to search for information without any difficulty and also helps them get the needed information to satisfy their educational needs. Omeluzor, Bamidele, Onuha and Alarape, (2013) revealed that most students are introduced to IL courses through face-to-face instruction, library orientation, discussion, seminars, and user education. They also indicated that most students can search for the needed information in their subject areas.

In his study on user education among students at the International Islamic University of Malaysia, Suleiman (2012) reported that most of the students established that, the user education class had helped them to improve their skills in searching for information while all the students also agreed that the course had helped them to utilize the Library Online Public Access Catalogue (OPAC) without any difficulties. He further indicated that half of the students agreed that libraries should provide more classes on user education for their patrons at all levels. Hadimani and Rajgoli (2010) disclosed that most students can locate the needed information in the library but lack the skills to access information electronically. A study at Hofstra University in New York by Catalano (2010) also revealed that most students could not use Boolean operators (AND, OR, NOT), subject headings, and truncation to search electronic resources. A study conducted by Ratanya (2012) on information literacy among students at Egerton University, Kenya, concluded that 52.0% of the students suggested that the campus library should provide practical training on searches, while 20.0% indicated that the library should develop an information literacy course in the University.

In today's world, information is critical when making various decisions. The availability of information used to be the major challenge; however, in the modern era, the issue is the plethora and overwhelming amount of information that people must contend with. Modern technological advancements, as well as the internet, have produced a massive amount of information daily. This has exacerbated the already-existing problem of information overload, as there is simply an overabundance of information for people to choose from when making decisions. As a result, information literacy has emerged as the most reliable method of assisting patrons in selecting the appropriate information from the vast amount of information available (Dorvlo & Dadzie, 2016). The American Library Association states that information literacy entails understanding when information is required and identifying, assessing, and utilizing that information succinctly (ACRL, 2000). Information literacy includes the capability to recognize an exigency for information, the accessibility of information resources, the requirement to analyze the information, awareness of the obligations and ethics of use, and how to convey and discuss one's results are all examples of information literacy. Presently, knowledge of information literacy is a requirement, not an option. Limited information retrieval skills have many repercussions in our world, where we are inundated with information. Persons who are woefully underprepared to take an active part in our information-rich society are falling behind. Therefore, information literacy skills education must be effectively assimilated into the educational programs of higher education to make students information literate and lifelong

learners (Gross & Latham, 2007).

With the prevalence of online databases and the steadily increasing use of the internet as a source of information, offering information literacy instruction to students is becoming increasingly important. As a result, institutions of higher learning all over the world, including Ghana, have introduced information literacy courses as part of their curricula to enable students to recognize their information needs, locate the appropriate information, assess the authenticity and reliability of the information gathered, and comprehend the moral and lawful concerns about the usage and reproduction of the information (Amegashie & Ankamah, 2020). Since the early 2000s, information literacy has been part of the curriculum of some public universities in Ghana. The University of Cape Coast was the first Ghanaian educational institution of higher learning to introduce information literacy as part of its curricula about two decades ago. At its inception, the program was known as Information Retrieval. However, the name was changed to Information Literacy Skills, and it is now taught to all undergraduate students (Afful-Arthur & Filson, 2015). Bannerman (2008) intimates that most higher educational institutions in Ghana have a variety of information literacy programs. According to the author, the University for Development Studies and the University of Cape Coast all have information literacy as gradable academic programs that all students pursuing degree programs must take. The University of Ghana and the Kwame Nkrumah University of Science and Technology also have some form of information literacy programs for their students. He did, however, state that information literacy at the Ghana Institute of Management and Public Administration was only taken by a select group of students as a non-credit scoring course.

In contrast, the curriculum of the University of Health and Allied Sciences and the Catholic University College includes a three-credit course in information literacy. Dadzie (2007) asserts that various information literacy programs exist in Ghanaian tertiary institutions, which supports Bannerman's (2008) findings. Dadzie (2007) further cited the University of Cape Coast's Information Retrieval course, as well as the communication skills and academic writing courses at the University of Ghana, as steps in the right direction toward meeting information literacy benchmarks in Ghanaian tertiary institutions. Several studies have been undertaken in Ghana to assess information literacy among students in tertiary institutions. These studies examined postgraduate and undergraduate students at Ghana's private and public tertiary institutions. Dorvlo and Dadzie (2016) discovered in a study that the overwhelming number of graduate students in Ghana lack information literacy. While some claim to be able to identify concepts, many are inept at using search strategies and assessing information. This study backs the findings of another study conducted at Ghana Institute of Management and Public Administration, which revealed that despite a general agreement by a vast majority of students on the essence of information literacy, the students were found to have no or limited information literacy skills.

A key component of information literacy entails students being conversant with library resources and the ability to exploit these resources. Undergraduate students at the Kwame Nkrumah University of Science and Technology (KNUST), however, were discovered to be unfamiliar with the use of library resources, and they were hesitant to seek assistance from library staff, resulting in hours spent searching for the appropriate information (Atta-Obeng, Boakye & Kwamena 2017). Another study at the University for Development Studies revealed that many students were unfamiliar with information literacy. Knowledge of academic databases and search strategies was also lacking. Although students reported being aware of

ethical issues such as copyright and plagiarism, compliance was low (Yeboah & Sanche, 2021).

Moreover, Atta-Obeng et al.(2017) discovered that students at Kwame Nkrumah University of Science and Technology (KNUST) frequently use Google as their search engine. Factors like credibility, neutrality, validity, immediacy, relevance, authenticity, and efficacy of the content must be examined while evaluating information from online or internet sources. However, this runs counter to how students assess information from internet sources. Researchers in Ghana's tertiary institutions are continuing to investigate information literacy. Even though almost all tertiary institutions in Ghana have some information literacy courses, most research participants remain inept in exploiting information resources.

Furthermore, in some institutions, information literacy is offered as a scoring program; in others, it is not. Current studies have failed to illuminate the best approach to delivering information literacy education. Future research must, therefore, investigate the effectiveness, benefits, and drawbacks of each approach to providing information literacy in Ghanaian universities. Ozor and Toner (2022) suggested that students face many barriers in their eagerness to access information and solve their information needs. Slow internet, lack of skills to access and retrieve information, and lack of staff to assist in training students on information literacy competencies were the main challenges captured by the authors in their study. This has been a major challenge in effectively studying the course (Kufuor, Tadam & Poreku, 2016; Ankamah, Gyesi & Anaman, 2021).

Materials and Methods

A survey approach was used to evaluate IL skills among Level 200 students. They were targeted for the study because they were the only students who had started IL courses at the College. A questionnaire was designed according to the study objectives. It was divided into five parts. Part one had three questions on the demographic information of the respondents. Part two dealt with the library catalog, how they search using it, and where they source the needed information. Part three dealt with IL skills with the variables like aspects of the IL course they have undertaken and searching techniques. Part four consisted of their IL priority areas and whether the IL course benefits them. Part five dealt with the challenges they encountered in learning the IL course.

The total population of the Level 200 students was four hundred and twenty (420), all included in the study. Paper-based questionnaires were distributed by one of the researchers to all the students in their lecture hall with the prior permission of the College Management. Their responses were retrieved within eight weeks. One hundred questionnaires were retrieved from the respondents, but 83 were found appropriate for the study. Those not found appropriate fell within the questionnaires that were not wholly answered and were also answered haphazardly. Therefore, it was difficult to understand the respondents' answering patterns, hence the omission of those questionnaires for analysis. Before distributing the questionnaire to the target population, over fifty questionnaires were sent out to a different College of Education for pre-testing or pilot testing to ascertain the reliability and quality of the questionnaires. Their feedback was constructive and contained important information, which helped the researchers to make changes to the questionnaire before sending it out to the intended targets of the study.

Results

This section presents the results of the study in simple frequencies and percentages. The

results of the survey are shown below.

Background Information of Students

Of 83 respondents, 53 (64.0%) were males, while 30 (36%) were females. The result implies that there were more male than female respondents. Regarding the age ranges of the respondents, the outcome showed that 47 (56.6%) of the respondents were between the ages of 16 to 20 years, followed by 35(42.2%) of those who were between 21 to 25 years, with only one (1.2%) between 26 to 30 years while none of the students was above 31 years. This indicates that most of the students who took part in the study were relatively much younger. Table 1 depicts the outcome of the responses about their ages.

Table 1
Age of Respondents

Category		Frequency	Percentage
Gender	Male	53	64
	Female	30	36
Age Group	16-20	47	56.6
	21-25	35	42.2
	26-30	1	1.2

IL Skills Possessed by Students in Searching Information

With regards to the question on how students search the library catalog, the responses revealed that 28 (34.0%) of the respondents search the catalog by using title, author, and subject, 20 respondents (24.0%) search by title and author, 12 (14.0%) participants search by title and subject, 10 (12.0%) by author and subject, 8 (10.0%) by title, 4 (5.0%) by author and 1 (1.0%) by publisher (Figure 1). This shows students have the basic skills to search the library's catalog.

Various reference materials exist in any library, whether school, college, or university. The best way to use reference collection effectively in any library is influenced by the awareness of the user and the relevance of that particular reference collection.

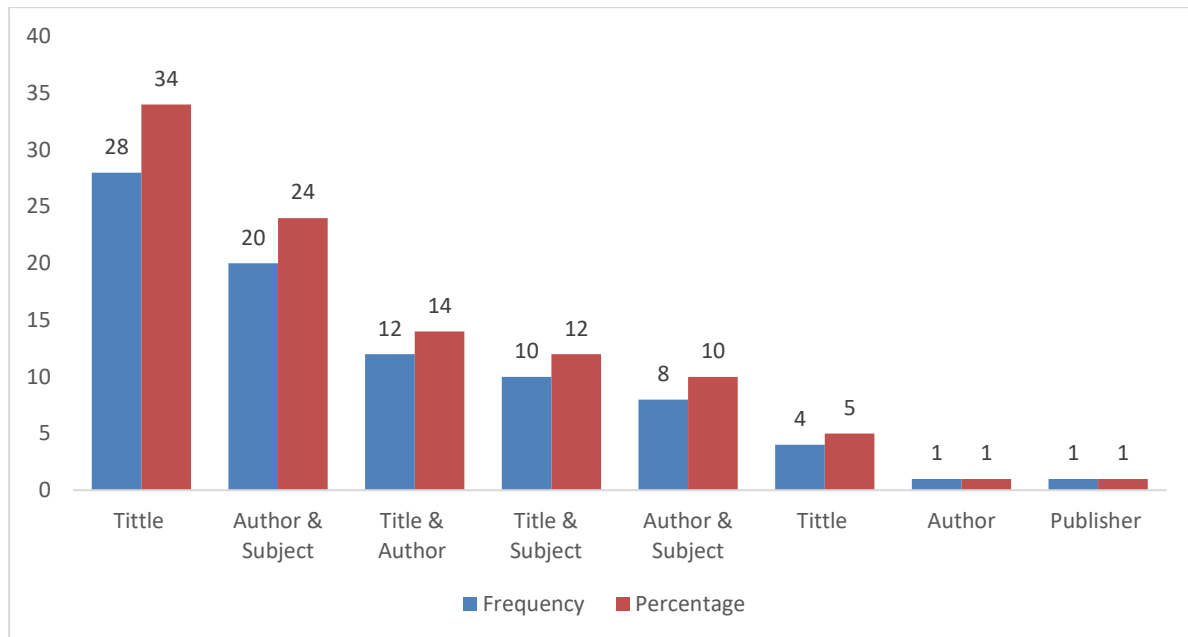


Figure 1: Searching the Library Catalogue

Knowledge of Reference Collection

To assess students' knowledge of reference collection, they were asked to indicate the reference source that provide general background information on a topic. Most of the students, 58 (69.9%) suggested that a book is their best source to acquire background information on a topic, followed by an encyclopedia with 18 (21.7%), 3 (3.6%) stated journals, 2 (2.4%) indicated database while no answer was given by 2 (2.4%) of the students (Table 2). This result indicates that the students provided the wrong answer to the question, which, in effect, could mean that they did not comprehend the topic taught from reference sources, hence the provision of the wrong answer.

Table 2

Knowledge on Reference Collection

Response	Frequency	Percentage (%)
Book	58	69.9
Encyclopedia	18	21.7
Journal	3	3.6
Database	2	2.4
No answer	2	2.4
Total	83	100

Searching Information In the Library

When respondents were asked to indicate how they seek information in the library, 54 (63.0%) of them indicated that they access information through shelf browsing 11 (14.2%) suggested library catalog, 10 (13.1%) seek information through the assistance of library staff. In comparison, 5 (7.6%) indicated they seek information through colleagues' help. Only 3 (2.1%) of the students indicated that they do not look for information in the library (Figure 2). These results show that the information literacy content offered by the College of Education is

effective as it helps students know the right ways of sourcing information in the library through shelf browsing and catalogs.

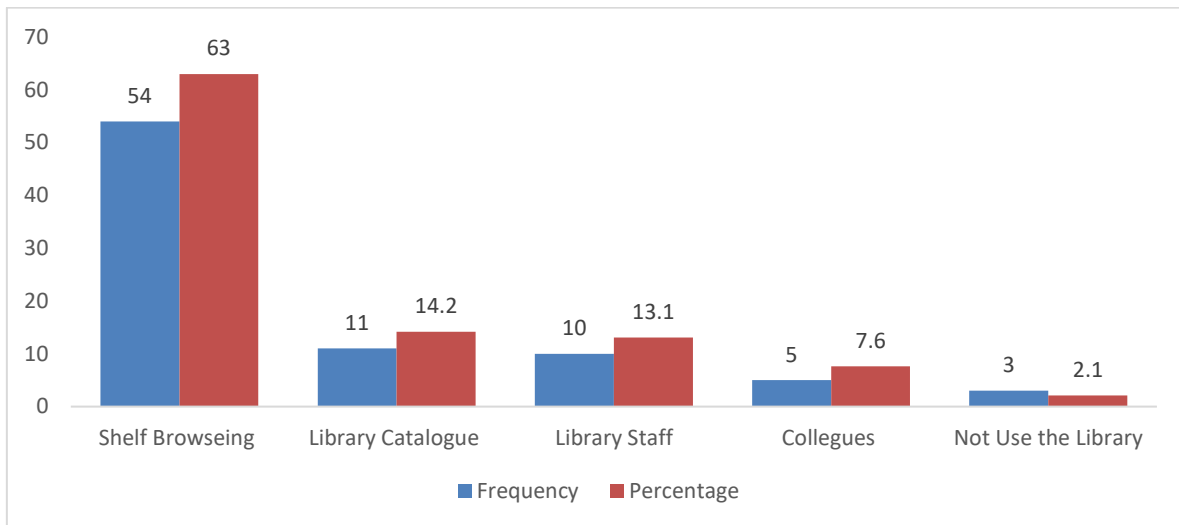


Figure 2: Searching for Information in the Library

Search Techniques Used

Students can search and retrieve information online using different search methods, such as keywords, Boolean operators, truncation, and field search. Students' answers on search methods are shown in Table 3, which gives an overview of the respective search techniques.

Table 3

Preferred Search Techniques

Search Techniques	Frequency	Percentage (%)
Using Keywords	77	93.0
Boolean Operators (AND, OR, NOT)	-	-
Field search (title, URL)	6	7.0
Truncation	-	-
Total	83	100

By asking students to indicate the preferred search technique they primarily use, it is clear from Table 3 that 77 (93.0%) use keywords as their preferred search method to search and retrieve information, and 6 (7.0%) use field search techniques. The findings also revealed that none of the students used truncation and Boolean operators in their searches. This result implies that students have a fair idea of conducting simple searches online. However, it could also be deduced that they are unfamiliar with using advanced search operators (Truncation and Boolean).

The kind of Information Literacy Course Students Undertake in the College

Concerning the information literacy content students undertake, 32 (38.6%) of the respondents said that they were taught information literacy skills in library instruction, 22(26.5%) of them said it was from research methodology, 18 (21.7%) said it was through the use of computers, 8 (9.6%) said it was from search strategies. In comparison, 3 (3.6%) of the

respondents did not give any answer to the question (Figure 3). This implies that library instruction, research methodology, use of computers, and search strategies make up the information literacy contents Level 200 students are trained in.

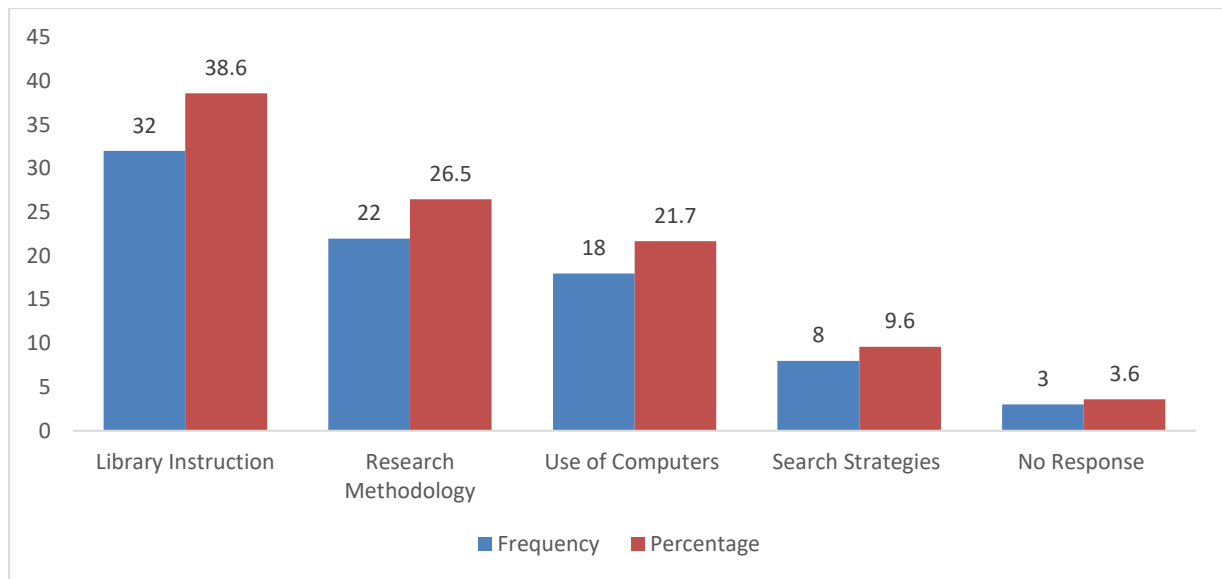


Figure 3: Information Literacy Course Students Undertake in the Library

The Usefulness of the Information Literacy Course

It is clear from Table 4 that (96.4%) of the respondents agree that the information literacy course was useful to them, 2 (2.4%) of them indicated that it was not a useful course, while 1 (1.2%) did not respond to the question.

Table 4
Opinions on the Information Literacy Course

Response	Frequency	Percentage (%)
Useful	80	96.4
Not Useful	2	2.4
No Response	1	1.2
Total	83	100

Areas of IL Course Training Needed

Students were asked to indicate areas of IL course training they needed most. Options were given to students to demonstrate their desired IL course training. Their responses are as follows: training in information search techniques received 24 (29%) responses; using the internet for information search attracted 23 (28%) responses; searching and retrieving academic information from online databases had responses from 18 (22.0%); evaluating internet information was rated by 16 (19.0%) of them and use of computers attracted 2 (2.0%) responses. Based on Figure 5, it is clear that training in information search techniques, training in using the internet for information search, training in searching and retrieving academic information from online databases, and training on evaluating information are what students need most.

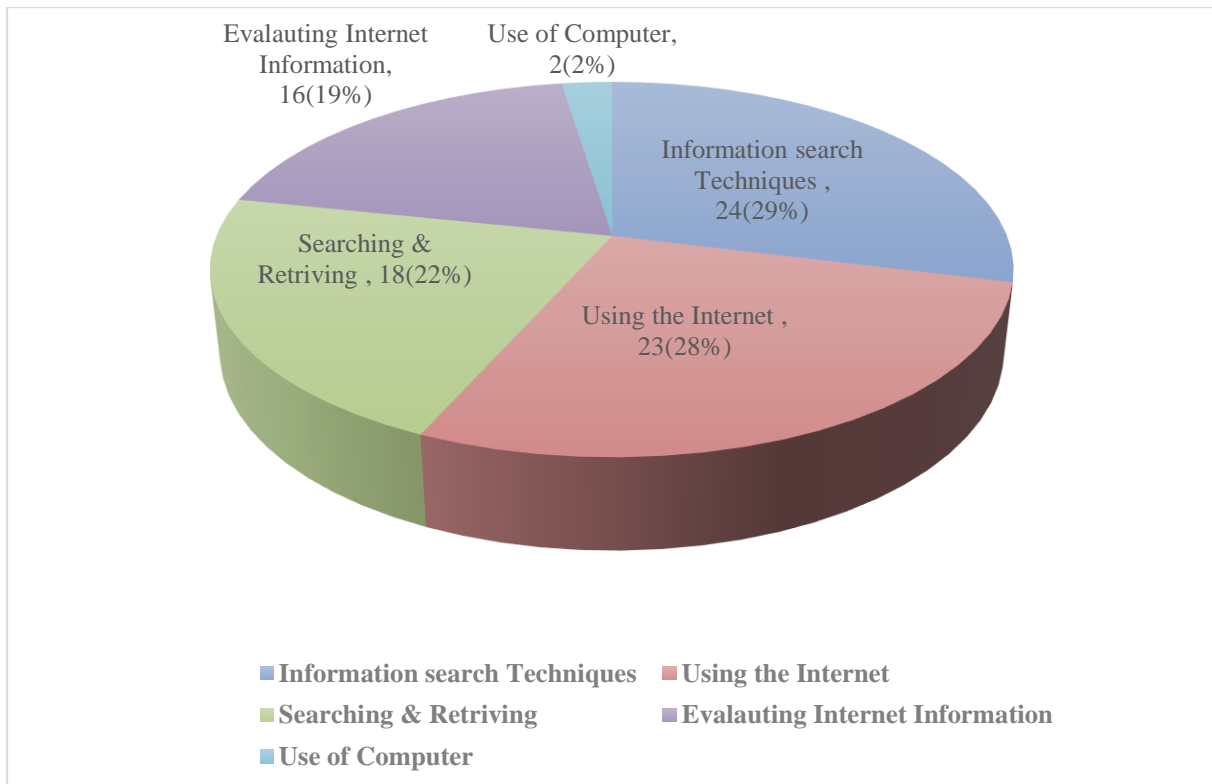


Figure 5: Areas of IL Course training needed

Challenges Faced in Studying Information Literacy Skills

Table 5 above depicts challenges faced by students in learning information literacy skills. 40 (48.1%) of the students clearly stated that the time for training was inadequate and overcrowded lecture halls are part of the significant challenges faced, 28 (33.7%) hammered on the issue of insufficient tutors, 10 (12.2%) indicated inadequate learning materials while 5(6.0%) of the students did not proffer answer to the question.

Table 5
Challenges in Studying Information Literacy

Challenges	Frequency	Percentages (%)
Inadequate Training Time and Overcrowded Lecture Hall	40	48.1
Inadequate Tutors	28	33.7
Inadequate learning materials	10	12.2
No Response	5	6.0
Total	83	100

Discussion

The main objective of this study was to assess the information literacy skills of one of Ghana's Colleges of Education. Information literacy is a concept that has gained wide recognition and attention, especially in universities across Ghana and the world as a whole. Although the concept taught by some colleges of Education librarians has still not received the recognition it deserves. The digital era is characterized by information overload and other factors that impede access to quality information. The only way for teacher trainees in the

various colleges of education in Ghana to arm themselves with the requisite skills to deal with this is to enroll in an information literacy program.

The first objective of this study was to assess the information literacy skills possessed by students in information searching. The results indicated that teacher-trainee students have the core skills to use the library's catalog. This shows that the course's introduction has helped students understand some basic ways of searching for information in the library. Students also indicated that using keywords to search for information was their preferred method of looking for information as compared to the use of Boolean operators, field searching, and truncation. This supports a study by Catalano (2010), which found that most students are not used to Boolean operators and truncation. A Ilogho and Nkiko (2014) survey on IL search skills also indicated that students from private universities in Ogun State, Nigeria, were deficient in search skills.

Additionally, students' knowledge of reference collections was assessed. They were asked to answer a question about the type of reference source that gives general background information. Unfortunately, the students responded by indicating that the answer is a book instead of an encyclopedia. A possible explanation for this wrong answer may be that students did not understand the information sources topic that was treated with them and failed to ask for reasons when the subject was taught. In support of this, Adeleke, Arikawe and Asaolu (2015) expressed that the ability to perceive the needed information, find, and use information constitutes information literacy education.

One of the study's objectives was to identify the areas of information literacy courses students are taught in the College of Education. This was to help the researchers understand the type of information literacy course offered in the school. It was discovered that library instruction, research methodology, computer literacy, and search strategies comprise the content of the information literacy course in which teacher trainees are trained. According to Chinyere (2014), user education instruction equips library patrons with the necessary skills to retrieve the needed information without any support from library staff. This view is also supported by Omeluzor et al. (2013). Furthermore, students indicated that the contents were valuable, so more attention should be paid to such content as searching and retrieving academic information from online databases and evaluating information to ensure that they gain full knowledge in information literacy. Aftab and Singh (2017) opined that information literacy is significant and useful in learning and research.

The study decided to find out from the students the various challenges they face in their quest to become information literate. Several challenges were indicated, among them were inadequate tutors and learning materials, but the most pressing of all was insufficient training time on the practical aspect of the course coupled with an Overcrowded lecture hall. This shows that as much as students are eager to learn the course, impediments like what has been indicated can reduce their interest in the program. This corroborates the views of Kufuor et al. (2016) and Ankamah et al. (2021), who showed similar issues in their various studies.

Conclusion

In this 21st century, information literacy should be one of the main features of higher education. Using the information at the workplace for teaching, researching, and supporting lecture notes is considered essential to the knowledge economy. Therefore, tertiary institutions, specifically, Colleges of Education, must take the necessary steps to incorporate information

literacy in their activities. Generally, students exhibited a good level of knowledge of the questions that were posed to them. This affirms the seriousness students attach to studying the course; therefore, administrators of Colleges of Education in Ghana and beyond should pay attention to the IL course since it can promote lifelong learning.

Recommendations

The following recommendations have been made to enhance the relevance and delivery of IL skills to students:

- Information literacy courses should be taught practically and theoretically to help students understand and grasp the concepts. The focus should not only be on the theoretical aspect. However, the practicality of the course requires improvement in internet connectivity and bandwidth to facilitate effective teaching.
- Information literacy courses should be integrated into the curriculum of all students in Colleges of Education. This will propel and prepare them to be lifelong learners.
- College of Education students should be trained rigorously in information literacy to make them more versatile in this ever-growing information age.
- Librarians should collaborate with teaching staff and design robust course content for students to strengthen information literacy teaching. However, this should meet the information needs of the students.

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