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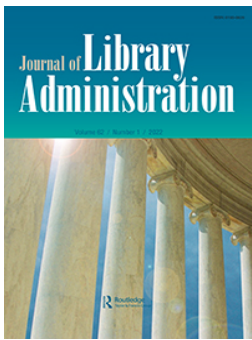
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## Information Literacy Behavior and Practice: An Assessment of Undergraduate Students at Ada College of Education, Ghana

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### ABSTRACT

Information literacy instruction and comprehension is often considered a priority in higher education institutions globally, especially in recognition for the role it plays in developing student skills in finding information effectively, critically evaluating information and creatively applying it as part of knowledge construction. Libraries and library departments are often at the forefront of facilitating access to information to support study and research. They are also often tasked with providing opportunities for the development of skills to support the effective, efficient, and ethical use and application of information. This research used survey methodology to assess information literacy understanding amongst undergraduate students of Ada College of Education, Ghana, as well as approaches to accessing information within this Ghanaian Higher Education College, specializing in education training. The results from this survey present an overview of the College's current approach to information literacy instruction, resource accessibility, as well as students' information literacy comprehension and application. A series of recommendations are presented for the College to consider in improving its approach to supporting information literacy skills development.

### KEYWORDS

Information literacy; academic libraries; higher education; library services; survey; Ghana

## Introduction

The 21st Century is replete with information, with an abundance of materials produced in both print and electronic formats. This information is accessible through community resources, and service providers, media, libraries, and the internet (Bundy, 2004).

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Whilst access to information is one barrier, the effective use and application of information and therefore the need for people to possess strong information literacy skills are another (Farmer & Henri, 2008).

The emergence of information technologies has had a profound impact on the accessibility of large amounts of information. Individuals can often struggle with the abundance of information and the numerous sources available for finding solutions to their problems (Singh, 2009). The gap between the available information and the skill set of information users has raised the need for individuals to acquire information and technological skills to help them become effective information users. The abundance of information sources can also lead to information overload cases, further necessitating that these users (especially students) be equipped with the relevant information literacy skills- skills that can help them progress through the complex information environment (Ferguson, 2009).

Information literacy is widely used across higher education but there has been a shift from the development of the student's understanding and application of knowledge to the student's ability to think through things critically and become life-long learners in all facets of life (Riedler & Eryaman, 2010). Consequently, as the information environment is becoming more complex, students are often faced with an information overload. The educational sector has recognized the need to incorporate information literacy into their curriculums for educators and learners to engage with information literacy as part of their formal learning processes (Bruce, 2004). However, whilst many western educational systems incorporate some aspects of information literacy instruction earlier on, the same cannot be said for those in developing countries. Information literacy in developing countries is often not introduced until higher education, if introduced at all.

For example, research conducted at universities in Ghana suggests that whilst information literacy exists in Ghanaian Universities, these institutions still battle with many challenges in their efforts to improve information literacy instruction (Arde-Acquah, 2006; Dadzie, 2007; Anafu & Filson, 2014; Dorlvo, 2016; Yebowaah, 2018). A study by Dadzie (2007) to assess how prepared universities are for delivering information literacy instruction found that information literacy programmes are hindered by many challenges. These include lack of commitment by universities to the information literacy programme, and inadequate understanding about what it is. The author also cited the unwillingness of the various departments handling information literacy programmes to collaborate in a campus-wide IL project and inadequate human resources (Dadzie, 2007). In addition to this, several studies have explored information literacy programmes, as well as students' information literacy skills within various universities in Ghana. The findings reported that students could not access relevant information, or ethically use it due to lack of skills and facilities (Anafu & Filson, 2014). A study by Dorlvo (2016) also found low levels of information literacy skills amongst postgraduate students at the University of Ghana due to a lack of a formalized information literacy instruction programme.

Given the above context, this research project seeks to assess the levels of information literacy skills amongst undergraduate students at Ada College of Education, Ghana (an affiliation of the University of Cape Coast). The objectives of the research were to determine current information literacy levels of undergraduate students and find out how

these skills are applied to their academic work. The research also seeks to determine what barriers (if any) the students faced in developing information literacy skills. The findings of this research could serve as the basis for providing the college administration and the library management team with insight and knowledge to improve information literacy instruction. The study seeks to enhance the existing information literacy research within Ghanaian higher education as well as information literacy research focused on understanding the needs and practices of undergraduate students in Ghana.

## Literature review

### *Information literacy*

Information literacy (IL) is not a new concept, as it has been used for decades within the library and information science. As society, technology and its users' needs have continued to evolve, so has the definition of information literacy. According to Grassian and Kaplowitz (2009), information literacy is a concept that has been built on previous work of the library community in the instructional movement called bibliographic instruction or library instruction. The concept of Information literacy, however, is credited to Zurkowski who coined the term in 1974. In a report to the US National Commission on Libraries and Information Science, he proposed that the organization's future priorities should entail establishing a national IL program. To achieve universal information literacy, Zurkowski (1974) contended that:

“People trained in the application of information resources to their work can be called information literate. They have learned techniques and skills for utilizing the full range of information tools and primary sources in moulding information solutions to their problems” (p.6).

Whitworth (2014) argues that while Zurkowski introduced information literacy, he did not develop the concept into any significant details. He noted that Zurkowski's concept was more focused on equipping people with information literacy skills for economic purposes. Whitworth further argued that Zurkowski's work is a pro-liberal, managerial position that identifies and advocates a suitable environment for economic and political liberalism.

More research has since built upon Zurkowski's work: in the early 2000s, information literacy was defined by the American Library Association (2000) as a set of abilities requiring individuals to “recognize when information is needed, locate, evaluate, and use the needed information effectively” (p. 2). The Chartered Institute of Library Professionals (CILIP) more recently defined information literacy as thinking critically and making balanced judgments about any information we find and use which empowers us to reach and express informed views and engage fully with society (CILIP, 2018). According to the American Library Association (2000):

“information literacy forms the basis for lifelong learning. It is common to all disciplines, to all learning environments, and all levels of education. It enables learners to master content, extend their investigations, become more self-directed, and assume greater control over their learning” (p. 3).

Bruce (2004) explains that in today's world of rapid technological change, information literacy may be the most important foundation for learning in that it equips students with the skills to become critical thinkers and problem solvers to succeed in their academic and professional life. In Bruce's opinion, the significance of information literacy lies in its ability to promote deep learning rather than surface learning, as well as its ability to transform dependent learners into self-directed and lifelong learners (Bruce, 2004). In academia, faculty are often expected to acquire information literacy skills to enable them to use information resources effectively for research and teaching. The importance of IL has thus driven many higher education institutions to incorporate it into their curricula to equip learners with the range of IL related skills required for higher education level study and beyond.

### ***Information literacy in the Ghanaian context***

Literature available revealed how educational institutions have been at the forefront of promoting information literacy instruction. Afful-Arthur and Filson (2016) revealed that the University of Cape Coast started a programme in information retrieval (IRC 101) in 1971. The program was later restructured into information literacy (ILT 101) and became a compulsory module for all undergraduate students. Its aim was to educate students on how to search and evaluate information sources for academic work. Yebowaah's (2018) study focusing on the University of Development Studies, points out that, though first-year students were given library instruction, this was not enough to equip them with information literacy skills. The school therefore further introduced User Education (GEN 101) in 1993 which was geared toward using library materials. A study by Arde-Acquah (2006) in the Institute of African Studies library showed that though the institute has a user education program to train students in information literacy, the program has faced many challenges, including inadequate time for lessons. To amend this Arde-Acquah recommended that the program should be restructured, and enough time be allotted to students.

Despite efforts by many universities, there remain challenges to the implementation of information literacy instruction. These include ineffective incorporation of information literacy into the school programmes, inability to extend information literacy programmes to their satellite campuses, and failure to include information literacy in the distance education curricula.

### ***Access and use of information sources***

Access to information is critical in enabling students to engage in knowledge construction, problem solving and to participate and contribute to informed dialogue about decisions which affect society. According to the International Federation of Library Associations (IFLA, 2014):

“Public access to information supports the creation of knowledge societies and includes the infrastructure, ICT and media and information literacy capabilities that people need to use information effectively, and preservation to ensure on-going access for future generations” (p. 2).

In today's information-rich age, students access information in a variety of ways and formats including, databases, academic journals, wikis, and search engines. The kind of information students access, how they access and use that information depends on their information literacy skills. For example, a study by Yebowaah and Owusu-Ansah (2020) that aimed at evaluating the information access skills of students of a College of Education in Ghana revealed that most of the students depended on web search engines as their primary source of information. A fair number of the respondents in the study indicated that they depended on the libraries as the main information sources. The study further revealed that more students (214) were accessing information in print format compared to only 89 who indicated that they accessed online or digital information. The respondents explained that they were more conversant with print formats than the online or digital formats. Another study by Yamson et al. (2018) to assess the perceptions, usage, and preference of electronic versus print resources among undergraduate students in Central University Ghana found that 134 (57.0%) preferred printed resources for academic work while 101 (43.0%) preferred electronic resources. Meanwhile, Mizrachi (2015) revealed that over 80% of students prefer print materials because they can highlight and annotate their print readings, unlike electronic resources.

A study by Kufuor et al. (2016) found that 66.1% of university students in Ghana use the library catalogue 15.2% used bibliographies while only 8.9% reported using journal articles. In a study at the University of Professional Studies (UPS) Ghana, Gyesei (2020) found that students mostly used Google and Google Scholar (72.2%) for finding information, while 55.7% browsed the book shelves, 40% used electronic databases, and 27.8% used the Open Access Catalogue (OPAC). These reviewed studies seem to suggest that there is some kind of balance between the use of search engines and library catalogues for finding information. Whilst these are but a few examples of studies undertaken to explore preferences in resource format and approaches to accessing information by students in Ghanaian universities, the studies provide some insight into their information seeking behavior.

As students access and use information, their awareness of the ethics and implications of using information sources is crucial. It is the responsibility of students to ensure that they are ethically using the information. Students therefore need to be made aware of topics in academic integrity such as plagiarism and copyright laws. A study conducted by Dorlvo (2016) at the University of Ghana revealed that only a few students knew how to use information ethically and most of them had minimal knowledge about plagiarism and how to avoid it. These findings may demonstrate a lack of understanding of the rules governing the use of information.

### ***Evaluation of information sources***

Some studies provide insight into how higher education students in Ghana interact with the information sources they use. For instance, in their study at Ashesi University College Ghana, Anafo and Filson (2014) found that most of the students use websites without evaluating their authenticity and the information they provide. A similar study by Kavi et al. (2019) at the University of Mines and Technology in Ghana also reported that many undergraduate students were not aware of how to effectively evaluate information



sources and what criteria to use. Other studies however, disagreed with this finding and noted that students were indeed able to evaluate information using criteria such as credibility and authority, scope and relevance, currency and timeliness, bias and accuracy, and coverage (Nii-Okai, 2018; Yebowaah, 2018). It is possible, based on the literature reviewed to argue that students' information seeking behavior and use will vary depending on the information literacy instruction they have received at their respective institutions.

### ***Barriers to students' access and use of information resources***

Even though there's an abundance of information available, students still face some barriers in accessing information. Technology facilitates access to information, but as well, a lack of technology will create a barrier to information access. Some studies that have been done in various Ghanaian educational institutions revealed some of the barriers students encounter in accessing information. A recent study at the University of Ghana by Ankamah et al. (2021) revealed that most of the barriers that impede access to information include low internet bandwidth (73.6%), inadequate information materials in the library (33.7%), information overload (66.8%), high cost of books, and other information resources (66.8%), and information illiteracy (12.4%). Other studies have revealed similar results: For example, Gyesei's (2020) study on students' information-seeking behavior at the University of Professional Studies (UPS), Ghana, reported that students' problems in accessing information mainly included technical challenges and lack of information resources. These problems include inadequate computers, unstable internet connection, low internet speed, paywalls and frequent power cuts. It also listed lack of information literacy skills, outdated library materials, and library operation hours as problems that hinder students' access to information. Kufuor et al. (2016)'s research at the University of Ghana identified three key barriers, including frequently disrupted internet access service (27.7%), difficulty in using the internet (14.3%), and difficulty in locating relevant sources (17%). Amankwa's (2014) study on undergraduate students' use of electronic resources at the Ghana Institute of Management and Public Administration (GIMPA) also found similar results with students listing inadequate computers in the library, limited subscription titles, and a lack of information on using electronic resources as challenges. Based on the studies above, it can be surmised that the main challenges students encounter in accessing information have to do with not just IT infrastructure but also personal barriers. These include lack of computers, poor internet connectivity, lack of information literacy skills, and financial constraints. This research seeks to add on and enhance these earlier studies by providing another case study involving an assessment of information literacy behavior and practice within a Ghanaian higher education institution. The results of the study could help stimulate further research in this area and as well provide some recommendations on how information literacy instruction could be improved in Ghanaian higher education institutions.

### **Methodology**

An online survey was used for data collection in the study due to its convenience and because of geographical constraints which prevented the researcher from having



physical access to the respondents. The target population were Level 200 (2nd year) undergraduate students at Ada College of Education, Ghana. This group of students was chosen as they are the first cohort of undergraduate students admitted into the undergraduate programmes delivered by college. Ada College of Education was chosen as the study site for this research as an accredited, degree-awarding institution with a population of 1200 students enrolled in different undergraduate programmes. In addition to this, as a college dedicated to the development and training of future education professionals (primary school teachers), the researchers were interested in understanding how the College prepared its students for the acquisition and application of information literacy skills as both student and future educator.

Convenience sampling was used to identify and recruit potential participants from the target population based on the availability and accessibility of participants. First, an introductory email was sent on behalf of the researchers by the college to all registered Level 200 students, which amounted to 300 students in total. In this email, the aims and objectives of the study were explained, as well as how students could take part in the research. The online survey adopted a structured questioning approach, featuring three sections (student access, evaluation, and use of information; ethical and legal use of information; barriers to access and effective use of information) with a range of open, closed, and open-ended questions (the [Appendix](#)). Each section was geared toward exploring the participants' understanding and application of information literacy skills, as well as access to information resources throughout their undergraduate studies to date. Data was collected using online survey software *Opinio*. The online survey was accessible by participants between April 16, 2020 and May 6, 2020.

## Results

A range of qualitative and quantitative data was collected. The quantitative data was analyzed using SPSS, whilst a text-based approach was used to analyze the qualitative data, where they were thematically grouped according to responses provided. Out of a target population of 300 Level 200 students who had the opportunity to complete the survey, 203 opened the survey link, with a total of 98 completing and submitting the survey fully. As such, there was a total response rate of 32.7%, which included responses from students enrolled in different undergraduate programmes as shown in [Table 1](#).

**Table 1.** Students who participated in the survey by programme of study.

	Frequency	Percent
B.Ed. Agriculture Science	8	8.2
B.Ed. Home Economics	13	13.3
B.Ed. Mathematics	16	16.3
B.Ed. Science	30	30.6
B.Ed. Technical Skills	16	16.3
B.Ed. Visual Arts	15	15.3
Total	98	100.0

*N* = 98.

### Access to information sources and instruction

When asked how often they visited the library, out of the total 98 respondents, 21 of the students reported that they used the library every day, 9 used the library once a week, 10 used the library twice a week, 29 used the library three times in a week, 14 used the library four times in a week, while 15 indicated that they do not use the library too often. The purpose of their visit was largely based around their academic work, as opposed to other nonacademic related tasks. For example, 46 (22.01%) respondents stated that the purpose of their visit was to read their notes, 46 (22.01%) visited the library to read their textbooks, 59 (28.23%) visited the library to carry out research for their course work, 46 (22.01%) visited the library to look for specific information (not specified), whilst 12 (5.74%) participants visited to read novels. It is worth noting here that participants were able to select multiple answers. Likewise, “other” was provided as an option, but no responses were received for this category (Figure 1).

When asked whether they had attended a library orientation provided by the University’s library staff, out of the total 98 respondents, 90 stated that they had, 7 stated that they had not, and 1 did not respond. In addition to this, participants were asked if they had received any form of training provided by library staff. Of those who stated that they had received some form of training, 16 (18%) stated that training had been provided on how to correctly cite sources, 44 (49%) received training on how to effectively search for books, materials, and other information within the library, 21 (23%) had received instruction on how to effectively use reference materials, and 8 (9%) received general training how to use the library, its processes and procedures. The answers participants provided above were free-text responses, not a multiple choice. 7 (1%) participants stated that they had not received any form of training, with participants mentioning “my mates helped me out,” “I ask others to assist me”, “search on the internet”, “by learning from others” as reasons why training was not sought or undertaken. Although this research was initially concerned with understanding formal training and learning opportunities, it was very interesting for the researchers to see how students potentially engage in informal training opportunities, particularly peer-to-peer

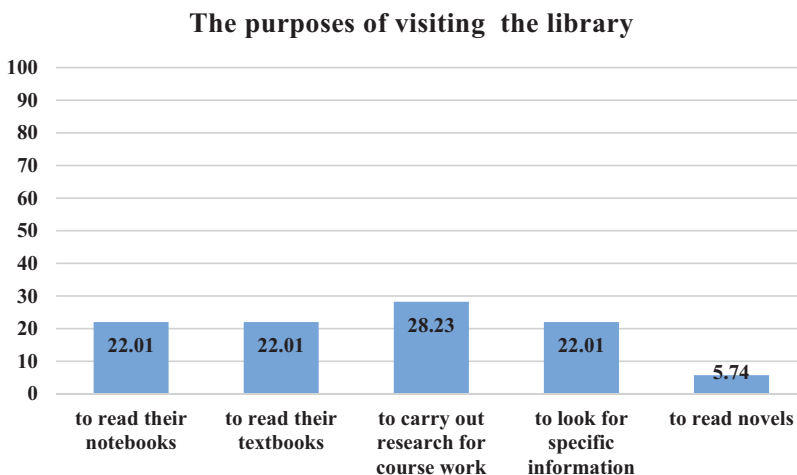
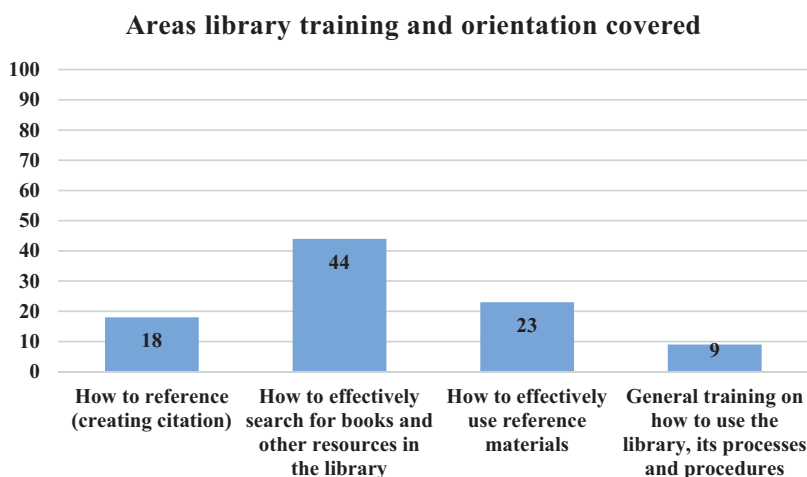


Figure 1. Reasons for visiting the Library.



**Figure 2.** Topics covered in library development and training programs.

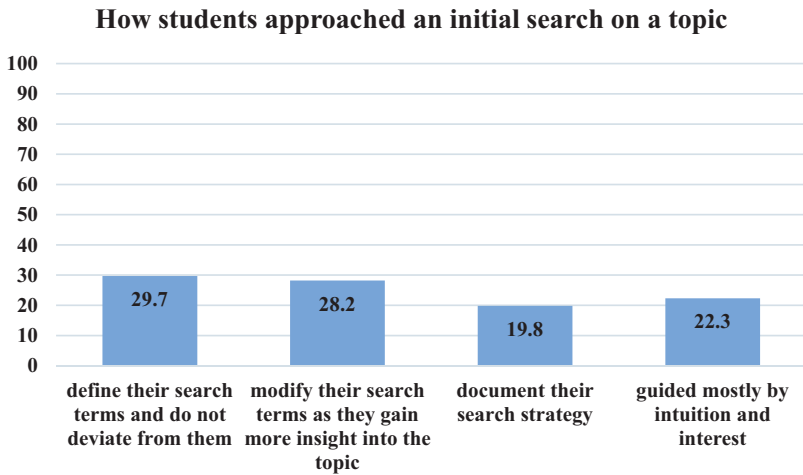
training, and support. Whilst this was unanticipated, it does suggest an interesting dynamic, one that is explored in further detail in the discussion section of this paper (Figure 2).

When participants were asked how they approached an initial search on a topic where no citation has been provided, 60 (29.7%) stated that they “define their search terms and do not deviate from them,” 57 (28.2%) responses stated that they ‘modify their search terms as they gain more insight into the topic, 40 (19.8%) “document their search strategy” in some form, whilst 45 (22.3%) responses suggested that they are “guided mostly by intuition and interest”. Participants were able to select more than one response to try and gain an overall understanding of their approaches to developing and implementing search strategies (Figure 3).

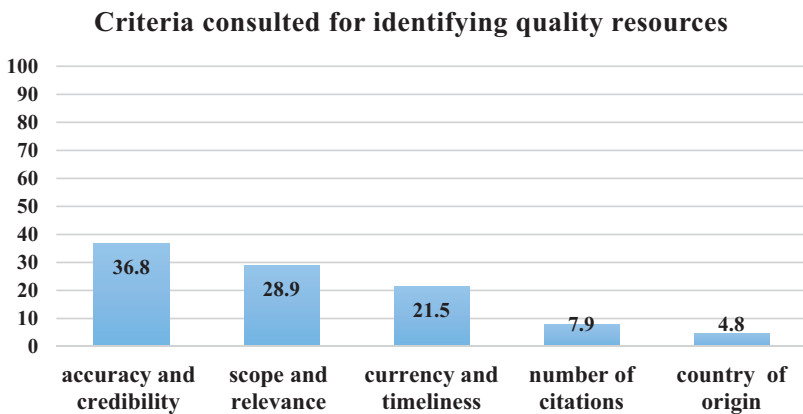
In terms of understanding what sources were used to search for information for academic work, 56 (20.9%) participants reported that they used the University Library, 93 (34.7%) used the internet, 71 (26.5%) asked their tutors, whilst 48 (17.9%) consulted with their friends. In addition to this, of those that used the internet to access information resources, 93 (34.7%) searched on Google, 5(1.8%) used Google Scholar, whereas 37 (13.8%) used Wikipedia.

### ***Evaluation and ethical use of information resources***

To determine respondents’ evaluation skills, they were asked to indicate whether they believed that they evaluate sources of information prior to use. 91 (92.9%) responded that they did, 6 (6.1%) did not, whilst 1 (1.0%) did not respond to the question. Participants who stated that they did evaluate information and sources prior to use were asked to specify how they approach this. From the responses received, 146 (42.8%) determined quality resources by checking an author’s name and/or qualification/credentials, 73 (21.4%) used verification of publisher details as a method to identify quality sources, 32 (9.4%) used place of publication, 31 (9.1%) stated that the popularity of the



**Figure 3.** Initial approaches the topic/question searching.



**Figure 4.** Criteria referenced for assessing the quality of resources.

author was an important consideration, while 59 (17.3%) responded that the date of publication was an important indication of quality sources.

In addition to understanding participants' approaches to identifying quality resources, the researchers were interested in determining what criteria participants used in evaluating various forms of information. Authority and credibility of the author was identified as the most popular criteria for evaluating information with 84 (36.8%) responses. Scope and relevance to the student was second with 66 (28.9%) responses, currency and timeliness of the information third with 49 (21.5%) responses, followed by number of citations with 18 (7.9%) responses. Country of origin was the least adopted criteria for evaluating information with only 11 responses (4.8%) (Figure 4).

A fundamental component of information literacy is the understanding and application of ethical approaches to the use of information. A summary of responses indicates that participants have a good awareness of what plagiarism is, with 93 (94.9%) respondents stating that they have heard of this previously. When asked to define plagiarism, participants' responses were provided as free text answers and then grouped under three

sections as part of the data analysis process. 69 (75.8%) of the respondent's explanations of plagiarism falls under the first theme, "Copying and representing of another author's language, thoughts, ideas, or expressions as one's original work." 18 (19.8%) falls under the second theme, "using someone's work without citation and referencing," and 4 (4.4%) explanations falls under the third theme, "using someone's work without permission" .77 (78.6%) participants indicated that they acknowledge the author of a book when they refer to it or use it to complete assignments or for research by citing the sources and adding a reference. 89 (90.8%) participants stated that they were familiar with the concepts of copyright with participants providing further elaborations of copyright summarized as 'legal right of the author of a book or creative work' (17 (20.2%)), 'document that gives an author the exclusive right to publish their work' (18 (21.4%)), 'law that protects original work/intellectual property' (9 (10.7%)), 'right of ownership for a work' (40 (47.6%)). Finally, when participants were asked if they believed they could benefit from further training or information relating to the legal and ethical use of information/resources 81 (82.7%) participants stated that they would.

### ***Barriers to access and use of information resources***

The final area that the researchers explored was in relation to barriers to accessing and using information resources. Offered as a free-text response, responses were grouped together according to their thematic area and included:

- "Lack of computer and internet/WIFI connectivity to access information in the library" – 46 responses were recorded out of the total 98 respondents.
- "Outdated library books, lacking relevance" – 20 responses were recorded out of the total 98 respondents.
- "No new books to support new courses at the University" – 8 responses were recorded out of the total 98 respondents.
- "No electronic resources in the library" – 1 response out of 98 respondents.

A total of 21 respondents did not give any response to the above question.

Perhaps unsurprisingly, when the researchers inquired about recommendations for how the library could improve services, the suggestions offered almost mirrored those responses identified as barriers above. Recommendations included:

- "Increased computer and internet/WIFI provision in the library" – 48 responses were recorded out of the total 98 respondents.
- "New books and updated stock to be included as part of the library collection" – 23 responses were recorded out of the total 98 respondents.
- "Electronic books and databases to be introduced as part of the library collection" – 12 responses were recorded out of 98 respondents.
- "Library assistance to be more readily available" – 3 responses were recorded out of the total 98 respondents.

## Discussion

### *Access and use of information sources*

The findings of the study show students are active users of the library and use it primarily for research related to their course work and to read for leisure. The information sources mainly accessed in the library included textbooks (40.5%), dictionaries (30.9%), and encyclopedias (28.6%) for their academic work. The findings corroborated Yamson et al. (2018) who found similar results in a study that assessed the perception, usage and preference of electronic vs print resources among undergraduate students. Yamson et al. (2018) reported that most of the students 134 (57%), preferred to access print resources for academic work as compared to 101 students (43%) who indicated that they occasionally prefer electronic resources. It can be deduced from the figure that the students are limited to print sources in the library. This suggests that print resources are in high demand among the undergraduate students. Further research will help understand the College's resource base and what effort they are making to improve it.

A significant number of the students expressed a strong preference for internet sources (34.7%) and 20.9% participants indicated that they prefer library materials for academic work. Unfortunately, electronic journals do not feature in the library's provision for students. The study found that most undergraduate students depended highly on search engines, classmates, and tutors to get information for academic work. A major concern is that the internet sources may not be scholarly and credible enough for standard academic work. This may be an indication of a lack of funding for the library to provide enough scholarly resources. The situation should be an opportunity to explore and possibly make provision for improved internet services and online resources.

Searching for information on the internet requires the use of a variety of search tools and techniques. The study revealed that students defined their search terms during their search, modified their search terms as they explored, documented their search strategy. The students were also guided by intuition and interest when they carried out their search. Most of the students depended on Google and Wikipedia, and Google Scholar to search for information. The constant reliance on the internet is a general indication of their preference for internet resources. Students can benefit more from internet information if equipped with the right information literacy skills to retrieve and use relevant academic information as well as evaluate the information they retrieve from the internet. The literature reviewed shows that in most universities in Ghana, the libraries have institution repositories and have subscribed to various electronic databases. However, the same cannot be said of Colleges of Education because they are more focused on training teachers and do not focus heavily on research compared to universities that are more research-intensive. In most universities in Ghana, the publications of faculty and students add to the sources in their repository. Another reason why resources are lacking in the College of Education might be a lack of funding, making it difficult to subscribe to electronic databases. A further case study in the college could help researchers understand what is available in terms of information resources, provisions being made, and the challenges they are facing.

The findings on the awareness of ethical use of information revealed that while most students are aware of ethics of information use (e.g., awareness of plagiarism), their

ability to apply this understanding in their own practice may be missing. Although no definitive conclusion can be drawn, the authors found it interesting that although the participants were given the ability to provide a free text response when asked to define what plagiarism meant to them, a large percentage of the respondents provided similar and often identical answers to the definition of plagiarism. As a self-reported survey, administered by the research team remotely, it was difficult for controls to be put in place to manage participant responses to reduce bias. As such, further research should be done to explore understanding and application of the ethical use of information in a more systematic and controlled way. In addition to this, the word for word similarities in the free text responses throughout the data raises a few interesting points relevant to the contextualization of this research and guiding future research in this area. Further exploration is required to substantiate the idea that student responses were duplicated. Beyond this, if duplication did occur, why did the students feel the need to copy from one another when individual viewpoints were being asked? Further discussion related to this observation will follow in the concluding limitations and directions for future research and practice section.

### ***Evaluation of information sources***

The findings revealed that the students used a range of indicators as part of their approach to evaluating the appropriateness, credibility, and applicability of resources. For example, students used criteria such as author prestige/credibility, resource scope, relevance, currency of the information and timeliness to evaluate the information. The number of times an author was cited, in addition to the country in which the information source originates from emerged as method students used to evaluate the suitability of an information source.

The findings generally indicated that the students to some extent evaluate the resources they use. For example, they determine the quality of information from websites using the website popularity, how frequently the website was used by friends, the author of the information, currency of the information, and the broader coverage. It is not enough, however, from the findings to say that the students are well versed in evaluating information sources since the study was limited to a particular group. The findings and the literature reviewed brought to light the importance of information literacy instruction in higher education. The literature revealed that across educational institutions in Ghana, there is a disparity in skill level, approaches, and application of information literacy skills. This emphasizes the importance of improving information literacy instruction in higher education institutions. In some educational institutions in Ghana, information literacy instruction is a core and compulsory module which all students must study at the beginning of their enrollment. In the case of Ada College of Education, the findings provided evidence that information literacy instruction is lacking for the students. Future research, including comparative case studies that look specifically at information literacy instruction and approaches across Ghanaian educational institutions would be welcomed in an attempt to present a more accurate and representative picture.



### ***Barriers to students access and use of information resources***

The researchers were interested in exploring the possible barriers to information access and use in the college. The significant barriers to information access reported in this study were, first and foremost, a lack of IT infrastructure and relevant print resources. In today's digital world, most of the information we consume is on the web, and the internet facilitates access to such online/digital information. Therefore, a lack of computers, internet access, and the skills needed to access the information is deemed as a significant barrier to information access and use. The lack of IT infrastructure is one of the main reasons students find it difficult to access online databases. This finding indicates a general lack of IT infrastructure in the college, which is likely to affect other aspects of students' academic work. In addition to the barriers mentioned above, this study also identified financial constraints as a factor that impeded information access. Students in the colleges of education are self-funded, and it is understandable for funding to be a barrier to some of the students depending on their financial situation.

According to the recommendations made by respondents, the lack of library staff is one of the most significant challenges that students face. Library staff play a vital role in the operation of any library by assisting students and providing other library services. In most cases, it is the library staff who provide students with information literacy instruction and training. However, since a lack of library staff was identified as a problem, this could be a contributing factor to students' lack of information literacy skills. Since this research was not focused on the staffing aspect of the college, a future study could explore this aspect and its effect on information access and information literacy skills.

### **Conclusion**

The findings in this study highlight that the library at the Ada College of Education plays a central role in providing support for students' research and other academic work, even though necessary facilities like computers, internet access, and books that cover current courses may be inadequate. Resources frequently consulted in the library are textbooks, dictionaries, novels, and encyclopedias. The study also revealed that students are provided with a limited number of formalized training sessions from the library. Studies such as this one is important in that they provide a greater understanding of the information seeking and use behavior amongst this group of students, allowing the College to better customize its approach to information literacy instruction, which in turn may improve the information literacy skills of the students.

In addition to this, from a resourcing perspective, the study showed that students did not have access to online electronic databases for learning purposes, so they rely mostly on print materials, which are also outdated. Whether directly related to this lack of available electronic resources or not, the study also showed that students tended to rely on Google, Google Scholar, and Wikipedia for information seeking when working on their academic assignments.

The development of information literacy skills is an integral aspect of success within higher education studies. Although the students in this study demonstrate some understanding of the concepts and practices of information literacy, this research highlights

that this understanding is limited in many cases. As has been explored throughout this study, mastering these skills is likely to play a significant role in students' academic success. As such, the college should improve its efforts to ensure that students have sufficient opportunities to develop these skills.

### ***Recommendations and implications for practice***

Based on the findings and outcomes drawn, a series of recommendations were made to the College and library for consideration. One of the barriers that impeded the students' access to information was the lack of information literacy skills. It is recommended that the College should introduce a stand-alone IL program that will cover topics on searching skills, evaluations of electronic and printed materials, citation and reference, information retrieval and plagiarism. In addition to this, the library should prepare and facilitate a comprehensive information literacy skills programme for students at the start of their college courses, which may also require the upskilling of current library-based staff.

To aid in the development of digital literacy skills, and support academic work, the College should improve access to computers and internet connectivity in the library and computer laboratory to enable students to access educational material online. In addition to this, where possible, the College should look to subscribe to online electronic databases with resources tailored toward the educational programmes that are studied in the college as this will help students and staff gain access to a greater number of online resources that go beyond general Google searches and Wikipedia. Finally, the Library should purchase more current books to support curriculum in the college. Through this, the students would have access to resources that are both relevant and current to support their academic endeavors.

This research presents an important assessment of the current approach to information literacy support, student comprehension and application, as well as resource availability and provision at a Higher Education College in Ghana. Although geographically specific, localized assessments of understanding, practice, and provision not only provide an important contribution to the local management of such institutions, but also provide an important contribution to linking examples of diverse practices on a global scale. Providing such presentations of differences in approaches, and therefore student skill level, understanding, and application, as was the case in this research, also provides potentially useful context for other education providers. In particular, studies such as this one informs libraries and academic departments how students from different geographical and cultural backgrounds may approach resource interaction and information literacy comprehension and application.

Finally, while it was recommended that the College and Library look to facilitate the development of information literacy skills for both staff and students, there is a broader conceptual point to this research, which is that access to information, including the format and quality of the information varies greatly from the higher education context presented here, compared to that of a higher education institution situated in what can be considered as a "developed" country. As such, it raises a potential need to explore whether current assessments, definitions, and frameworks relating to information

literacy development are suitable within the context explored in this paper, and those that operate in similar environments. For example, is there a need to customize existing information literacy frameworks and standards to specific countries and therefore contexts? Or is there value in adopting frameworks as they are, without modification to assist in consistency in knowledge development that transcends countries and contexts? The authors raise this point as an observation emerging from this research, as well as a call for further research in this underdeveloped area.

### Limitations

Limitations in this research can largely be associated with the methodological approaches taken, as well as the context explored. Firstly, as a self-reporting survey was used, there is a possibility that the responses given did not match the reality of the situation. Likewise, the self-reporting of the survey could mean that respondents over reported their information literacy skill levels, instead of accurately reporting their actual skill level.

The research site was chosen as it provided a useful context that represents an under-explored area of knowledge. However, the context explored is unique and whilst it may be possible to identify similarities within other, higher education institutions in Ghana and beyond, there are difficulties in generalizing the data presented in this paper. At no point do the researchers state that they seek to generalize the findings to other contexts, but instead welcome future research that seeks to build on the avenues of research explored with the potential to provide much needed scholarly and practical contributions.

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## Appendix: Text version of survey instrument

### Survey questions

Topic: Information literacy behavior and practice: An assessment of undergraduate students at Ada College of Education, Ghana.

Please answer the questions below. All information you provide is confidential.

Information literacy is a set of abilities requiring individuals to “recognize when information is needed and have the ability to locate, evaluate, and use effectively the needed information” (ALA, 2002).

### Section A

1. What course are you enrolled in?
2. Which level are you?

### Section B

Student access, evaluation and use of information

3. How often do you visit the library?
4. What is your purpose for visiting the library? (Select all that apply)
  - a. Read my notes
  - b. Read my textbook
  - c. Do research for my course work
  - d. Look for specific information
  - e. Read novels
  - f. Other (please specify) \_\_\_\_\_
5. Did you receive library instruction or orientation from the ADACOE Library staff?
  - a. Yes
  - b. No

If Yes, what kind of library training did you receive?

If no, how then do you acquire the skills to search for information?
6. Do you have access to electronic resources and databases in your college’s library?
  - a. Yes
  - b. No

7. What kind of resources do you access in the library?
- a. Textbooks
  - b. Dictionary
  - c. Encyclopedia
  - d. Manuals
  - e. Almanac
  - f. Other (Please specify) \_\_\_\_\_
8. How do you search for information resources on a certain topic when no reference list is given? (More than one answer possible)
- a. I start by defining my search terms and then stick to them.
  - b. I modify my search terms while researching and gaining more insight into the topic.
  - c. I document my search strategy (i.e. keeping track of used search terms and consulted information resources).
  - d. I let myself be guided mostly by intuition and interest (i.e. starting to read somewhere and following interesting ideas as they come up).
9. How do you get information for your academic work?
- a. Library
  - b. Internet
  - c. Tutors
  - d. Friends
10. Which tools and strategies do you use to access information resources? (more than one answer possible)
- a. Google
  - b. Google Scholar
  - c. WorldCat
  - d. I go to the library and browse through the shelves/open stacks for potentially interesting sources.
  - e. I ask fellow students, tutors, or course coordinators for help.
  - f. Wikipedia
11. Do you evaluate the sources of the information you search?
- a. Yes
  - b. No
12. How do you determine a good source of information? (Tick as many as applicable)
- a. Check the author's name
  - b. Verify the publisher
  - c. Place of publication
  - d. Qualification of the author
  - e. Popularity of the author
  - f. Date of publication
  - g. Other (please, specify) \_\_\_\_\_
13. What are the criteria for evaluating information? (Check all that apply)
- a. Authority and Credibility (publisher, author, date of publication, credentials etc.
  - b. Scope and Relevance
  - c. Currency and Timeliness
  - d. Country of origin
  - e. The number of citations
  - f. Other (Please specify) \_\_\_\_\_

14. How will you be able to know that the information from the website is credible?
- a. The popularity of the website
  - b. The website is always used and accessed by friends
  - c. The author of the information
  - d. The currency of the information
  - e. Wider Coverage

### **Section C: Ethical and legal use of information sources**

15. Have you heard about plagiarism?

- a. Yes
- b. No

If yes, what is the meaning of plagiarism?

16. Do you acknowledge the author of a book if you use part of his or her works for your assignments or research work?

- a. Yes
- b. No

If yes, what form does the acknowledgement take?

If no, why not?

17. Are you familiar with the term copyright?

- a. Yes
- b. No

If yes, what do you know about copyright?

How did you get familiar with the term copyright? please select the appropriate answer

- a. Prior experience
- b. Training from the college

18. Have you photocopied a whole book before?

- a. Yes
- b. No

If yes, what was the reason? Please list the reason here.

19. Do you think that you would benefit from further training or information relating to the ethical use of information?

- a. Yes
- b. No

If yes, what would you like this to cover?

### **Section D: Barriers to access and effective use of information**

20. What kind(s) of problem(s) do you encounter in accessing information? \_\_\_\_\_
21. Apart from the problems you listed in 21, what other challenges do you encounter with access information? \_\_\_\_\_
22. What do you recommend should be done to improve the services of the library for easy access to information?