

Selikem Sebuava Dorvlo

Accra polytechnic

sasebuava@yahoo.com

Dr. MRS. PERPETUA S. DADZIE

Department of Information Studies
University of Ghana, Legon

p.dadzie@hotmail.com

**INFORMATION LITERACY AMONG POST GRADUATE STUDENTS OF THE
UNIVERSITY OF GHANA.**

ABSTRACT

Information has become so important for decision making in today's world. The problem of information used to be scarcity of information but in the current century it has become abundance of information. This is as a result of the development of various media of information, for example information from books and the internet. The development of information communication and technologies has escalated the problem of information that is, too much information for people to choose from for decision making. Information literacy is the surest way of helping solve the problem of choosing the right information from the abundance of information from various media.

The purpose of the study is to investigate the information literacy levels among post graduate students of tertiary institutions, specifically the University of Ghana.

The survey method was used to collect data for the study. The number of students involved was 151 in number giving an overall response rate of 56.98%.

The variables considered in this study include: concept identification, search strategies, search tools, evaluation of information and the legal and ethical use of information. Most students knew how to identify concepts whereas most of them were not skilled in the use of search strategies, search tools and the evaluation of information. However, some of them knew about copyright issues. This result shows that the majority of the post graduate students are not information literate.

The study recommends that information literacy education should be introduced into the curricular of the University of Ghana as a full course which needs to be credit bearing. Information literacy should also be integrated into the research method course that is offered by every department and school. More library professionals should be employed to teach the course more effectively and efficiently.

Keywords: information literacy, information overload, information technology, lifelong learning,

CHAPTER ONE

INTRODUCTION

1.1 Background to the Study

The twentieth century may well be remembered for its exponential growth of information and technology. Not only has more information been created in the last one hundred years than the rest of recorded history altogether, but the simultaneous global access to that information could not have been imaginable a hundred years ago. Worry about lack of information has been replaced by information anxiety, the result of information overload and the sense that one cannot manage the information available. The recent decades have been termed the “information age,” and the early twenty-first century has given rise to the “knowledge age” with the awareness that information in itself cannot solve problems; it is the effective use of information that promises solutions, therefore people need to be information literate (Farmer and Henri, 2008).

The increasingly complex world in which we live in contains abundance of information alternatives which include; print, electronic, image, spatial, sound, visual, and numeric. The issue is no longer about not having enough information, but it is just the opposite, that is, too much information, in various formats and not all of equal value. In an era of more than 17 million Internet sites, three billion Web pages, and more than a million items in a typical medium-sized academic library, the ability to act confidently (and not be paralyzed by information overload) is critical to academic success and personal self-directed learning (Rockman, 2004). Even though students of today have increasing facility with computers and

electronic media, yet still they need to develop the skills to locate authoritative information (Lombardo and Miree, 2003; Emmons and Martin, 2002; Maughan, 2001) and to effectively analyze the quality, quantity, and source of the information they retrieve (Majka, 2001). Educating students in information literacy is not only a worthwhile goal but is an essential component in the development of students as lifelong learners (Cooney and Hiris, 2002).

The acquisition of information literacy skills in society is a serious issue. Today, the consequences for reaching adulthood with limited information literacy skills are becoming increasingly severe. Individuals who are unprepared to participate in our information-rich society are at an increasing disadvantage. This means that it is crucial to integrate information literacy skills education into both basic and higher education effectively if we wish students to be full participants in tomorrow's workforce. Students need to achieve a level of information literacy that will allow them to find, assess, and use information in order to succeed in school, the workplace, and their personal lives (Gross and Latham, 2007). Information literacy has been defined by the American Library Association, as “a set of abilities requiring individuals to recognize when information is needed and have the ability to locate, evaluate, and use effectively the needed information” (ALA, 2000). In 2005, Alexandria Proclamation defined information literacy which was later adopted by UNESCO’s Information for All Programme (IFAP), as the capacity of people to: recognize their information needs; locate and evaluate the quality of information; store and retrieve information; make effective and ethical use of information, and apply information to create and communicate knowledge.

Information literacy is therefore the ability to recognize information required, finding that information from a source and assessing the genuineness of that information. It is crucial for

lifetime learning and the production of an informed and affluent community. An information literate person is a person who knows how to identify information need, find and critically evaluate how genuine that information is. This skill is, therefore, very essential among students' especially graduate students who will be expected during their courses to do assignments, read about the various subjects under their courses and also write their theses. Subsequently, the skill will enable them to be independent when they enter into the work force.

Rockman (2004) is of the view that an information-literate person is able to;

1. Determine the extent of information needed
2. Access the needed information effectively and efficiently
3. Evaluate information and its sources critically
4. Incorporate selected information into his or her knowledge base
5. Use information effectively to accomplish a specific purpose
6. Understand the economic, legal, and social issues surrounding the use of information, and access and use information ethically and legally.

Post graduate students of any university need to be information literate. They undertake research that effect change in the society; their findings solve societal problems. Their research activities also lead to new inventions. It is therefore important for them to acquire information literacy skills so that they do no reinvent the wheel. This has to do with knowledge about recent developments in their fields of study. It is for this reason that the researcher wants to access the level of information literacy among post graduate students of the University of Ghana.

1.2 Statement of the Problem

Post graduate students of the University of Ghana need information literacy skills to write their theses, read around their courses and complete their assignments. During a discussion with one of the librarians in the Balme library's computer section at the University of Ghana, the researcher found out that, most post graduate students in the University of Ghana do not have information literacy skills. Some of them do not know that the library has a lot of information sources such as electronic resources including databases where they can get information.

Though some of them know about the existence of the databases in the Balme library and can access them at the graduate school, they do not use them because they simply do not have the skills to search for information in the databases. It is possible that some of the post graduate students in the University have this skill because they wrote long essays at undergraduate level and might have learnt how to search for information using the database. But, there are some who did not have their undergraduate study at the university and would not be able to use the manual as well as electronic resources, if they are not taught how to.

A preliminary investigation by the researcher revealed that at the University of Ghana, there is no organized training in information literacy for students both at undergraduate and post graduate levels. Apart from the one week orientation given to students when they arrive as fresh men and sometimes lecturers arranging for a session with librarians to teach students how to search for information, there is no provision for information literacy education as a major course to be studied in the university. It is for this reason that this study seeks to find out the information literacy levels of students at the post graduate level of University of Ghana.

1.3 Purpose of Study

Thus, in view of the problem identified in the preceding section, the main thesis of the current research logically ensues. It is the purpose of this research to study the information literacy levels among post graduate students of tertiary institutions, specifically the University of Ghana.

1.4 Objectives of the Study

The specific research objectives of the study are as follows:

1. To find out how graduate students identify their information needs.
2. To assess how graduate students locate information needed.
3. To examine how graduate students evaluate the retrieved information
4. To find out how graduate students use information legally and ethically.
5. To make recommendations with regard to promoting information literacy at the University of Ghana.

1.5 Research Questions

In view of the above-mentioned objectives, the specific, corresponding research questions that the study seeks to address are as follows:

1. How do graduate students identify their information needs?
2. How do they locate information needed?
3. How do they evaluate the retrieved information?

4. How do they use information legally and ethically?
5. How can information literacy be improved in University of Ghana?

1.6 Significance of the Study

The study would be beneficial in that it would help create awareness for the study of information literacy at the post graduate level. The post graduate students being aware of information literacy skills and acquiring them will make them effective and efficient in their academic exercises; assignments, writing thesis etc.

The study would also guide administrators of the University of Ghana graduate school to plan for information literacy education for the students.

The study would be useful to policy makers of the university in inculcating information literacy education into the curricular of the University of Ghana.

The study would also serve as a means of motivating other universities to include information literacy in their curricular.

1.7 Scope and Limitation

The post graduate students were selected for this study because they carry out a lot of research which may help in solving some societal problems. Another important factor that also informed the choice of the post graduate students and not the whole university in general was the limitation in time and finance.

1.8 Outline of the Study

The study was organized into five chapters as follows:

- Chapter 1 This chapter is the introduction and it covered the background to the study, statement of the problem, purpose, objectives, significance of the study, scope of the study and how it will be organized.
- Chapter 2 Deals with the literature review and theoretical framework.
- Chapter 3 Describes the research methodology and this covers the research design, selection of case study, population and sampling, sampling technique, sources of data, data collection instruments and analysis of data.
- Chapter 4 Deals with the presentation, interpretation of the findings and discussion of findings.
- Chapter 5 Deals with the summary of the findings, conclusion and recommendations.

CHAPTER TWO

LITERATURE REVIEW AND THEORETICAL FRAMEWORK

2.1 Introduction

This chapter reviews the literature on information literacy and also presents the theoretical framework which governs the study. The review will be considered under the following topics;

Definitions of information literacy

Information literacy and lifelong learning

Barriers to information literacy

Information Technology and information literacy

Information literacy in Ghana

2.2 Definitions of Information Literacy

Information literacy has been defined variously. Information literacy has been defined by the American Library Association, as “a set of abilities requiring individuals to recognize when information is needed and have the ability to locate, evaluate, and use effectively the needed information” (ALA, 2000). Information literacy is defined as the set of abilities that enables one to “recognize when information is needed and have the ability to locate, evaluate, and use effectively the needed information” (Association of College and Research Libraries, 2002). Campbell (2004) is in agreement with these definitions when he outlined the components of information literacy which includes the ability to; recognize information needs, locate and evaluate the quality of information, Store and Retrieve information, make effective and ethical use of information, and apply information to create and communicate knowledge.

Information Literacy (IL) is typically conceptualized as the ability to identify information needs, locate information, manage, evaluate, and effectively manipulate and use it in situations where it is needed. While definitions vary, they typically have two commonalities: A set of abilities, skills, competencies, or fluencies, which enable people to access and utilize information resources and the creation of effective information solutions to address problems (Lin 2010).

Hepworth and Walton (2009) defined information literacy as a complex set of abilities which enable individuals to: engage critically with and make sense of the world, its knowledge and participate effectively in learning to make use of the information landscape as well as contributing to it. Bruce (1999) defines information literacy as “peoples’ ability to operate effectively in an information society”. Information literacy has an extensive rule and general reputation with librarians.

Even though definitional issues have inundated this concept (Ward, 2006), there seems to be no need to duplicate all its definitions. Instead we can state that information literacy emphasizes the need for cautious retrieval and selection of information available and places prime emphasis on recognizing message quality, authenticity and credibility. It concentrates on critical thinking, meta-cognitive, and procedural knowledge used to locate information in specific domains, fields, and contexts (Hobbs, 2006).

There has been a great deal of deliberation regarding the terms *information* and *literacy* and the arguments for and against using these (Owusu-Ansah, 2003), whether they should be used

mutually (Loveless & Longman, 1998) also what they mean (Case, 2002; Lloyd, 2003; Saranto and Hovenga, 2004; Andretta, 2005). In spite of this, Information Literacy continues to be discussed and this argument has reached the global arena in which there have been a number of pronouncements.

The Prague Declaration (resulting from a UNESCO-sponsored conference and reported in United State National Commission on Libraries and information Science (USNCLIS) (2003), reiterated by the Alexandria Proclamation (UNESCO, 2005) and the current US Presidential Proclamation on information literacy (Obama, 2009) has added credence to the significance of the concept. They also argue that information literacy is not only an important set of skills to enable information to be gathered and used but also vital for useful participation in the ‘information society’ and a basic human right, statements reminiscent of the comments made by Kuhlthau (1987, quoted in Bawden & Robinson 2002).

Information literacy is the ability to solve problems, taking advantage of information technology and networks. Information literacy by UNESCO’s Information For All Program (IFAP) is the capacity of people to recognize their information needs; locate and evaluate the quality of information; store and retrieve information; make effective and ethical use of information and apply information to create and communicate knowledge (Catts and Lau, 2008). This definition is absolute for the reason that it entails all the information skills that an information literate person must have and most importantly highlights the power granted to the individual by being information literate. ‘Recognizing information needs’ refers to the capacity of an individual to be aware that information is required to solve or address a certain task.

Catts and Lau (2008) stipulated that this awareness is not a fixed capacity but one which needs to be applied to every arising situation. The aspect of ‘locating and evaluating the quality of information’ entails two parts: locating information – the ability of an individual to know where to search for the required information based on the context – and ‘evaluating the quality of information’, which goes hand in hand with locating it – the ability to assess accuracy, credibility and reliability of the obtained piece of information. The capacity to ‘store and retrieve information’ can be related to different contexts: whether it is information about one’s culture and heritage, business records and technical know-how, or storing one’s personal contacts. The ‘effectiveness of information use’ represents the capability of using information optimally in problem solving and/or critical thinking, while the ‘ethical use of information’ entails using information in a way that does not affect other people’s rights. The ‘capability to create and communicate knowledge’ is the ultimate product of information literacy since it enables knowledge creation (Tilvawala, Myers and Andrade, 2009).

2.3 Information Literacy and Lifelong Learning

Developing lifelong learners is central to the mission of higher education institutions. By ensuring that individuals have the scholarly abilities of reasoning and critical thinking, and by helping them construct a framework for learning how to learn, colleges and universities offer the foundation for continued growth throughout their careers, as well as in their roles as informed citizens and members of communities. Information literacy is a key component of, and contributor to, lifelong learning. Information literacy competency extends learning beyond formal classroom settings and provides practice with self-directed investigations as individuals move into internships, first professional positions, in addition to increasing responsibilities in

all areas of life. Information literacy augments students' competency with evaluating, managing, and using information, it is now considered by several regional and discipline-based accreditation associations as a key outcome for college students (American Library Association, 2000).

The ever increasing mode of information technology has caused the increase in the production of information. The information produced includes those that are filtered or censored and those vice versa. This information can be found mostly on the internet. There is the need for those who go in for information on the internet to ensure the validity and authenticity of information and this brings to the fore issues regarding the skills needed to do so.

Information literacy has become an important skill for students due to societal changes that have seen information become a valuable commodity, the need for graduates to become lifelong learners, and the recognition that information literacy is very essential for effective learning in higher education. Much of the discussion around this issue has arisen in recognition that we have entered an age where the quality and quantity of information needed to operate effectively in society and the workplace continues to increase. People must be abreast with the fast changing information technology and acquire this information literacy skill to act independently in this information rich environment (Baro, 2010).

Information literacy needs to be embedded in the courses that students offer in the Universities this is the view of George, et al. (2001) from the University of South Australia. Jacobs et al. (2003) were of the view that to properly prepare graduate students for their respective careers,

the library should initiated a modular approach to integrate information literacy competencies into the core courses of the master's program. This project has also provided an information literacy teaching/learning platform that guides development and implementation of more advanced information literacy competencies embedded in evidence-based practice components of the specialty courses in all New York University nursing master's programs. They also stipulated that for graduates of Master's programs, the guiding principle are competency in organization of information; an understanding of the cycle of scholarly publication; how to access, evaluate and synthesize information into an existing body of knowledge; as well as an awareness of the social and ethical concerns related to information (Jacobs et al. 2003).

It is important to note that information literacy forms the foundation of lifelong learning. Information literacy is a regular place for all disciplines, suitable and apposite to all learning environments. Also search strategies have become more self-directed, and this helps assume a greater control over learning (Aggrey, 2009). Dadzie (2007) posited that information literacy is a competency required from the first year of academic study and this is particularly important for independent essay and thesis writing. Dadzie argues that it is needed for consequent professional activity, and actually part of lifelong learning. Information literacy skills empower people with the critical skills that help them to become independent lifelong learners (Prasanna, 2008).

Furthermore, information literacy helps to solve the problem of data smog (ACRL, 2006). Data smog is too much information which creates barrier to people's lives. This is as a result of the ever increasing mode of information technology that has caused the increase in the production

of information. Information literacy helps to overcome data smog because it helps the individual to determine information need, locate needed information, analyze the retrieve information and communicate information that have been retrieve.

2.4 Barriers to Information Literacy

Lin (2010) stipulated in her article entitled “Information literacy barriers: language use and social structure” that extracurricular/civic activities in schools are rich settings for effective learning, but structural factors, often over looked by proponents of information literacy, constrain students’ opportunities for civic participation. Nevertheless, many practitioners identify that getting information literacy established as part of an institutional approach is a key step in making information literacy legitimate or winning ‘hearts and minds’ (Correia and Teixeira, 2003; Howard and Newton, 2005).

In advanced countries premium has been put on information literacy and this led to information literacy becoming a global issue. Many literacy initiatives have been documented throughout the world with particularly strong efforts from North America, Europe and Australia. A lot of studies have been conducted in information literacy in universities and also at work place (Parker, 2003; Lloyd, 2006).

In Africa, information literacy is a less important issue in universities and second cycle institutions. This is evident in the words of Ojedokun and Lumande (2005) information literacy has not been accorded its position in the higher education curriculum of most African institutions.

2.5 Information Technology and Information Literacy

A number of studies have revealed that lack of information literacy is partly the cause of underutilization of existing ICTs and information resources. Adam and Wood (2006), in their study of utilization of ICTs in African Libraries, established among other factors the problem of lack of information literacy. Whereas in developed countries, information literacy has largely been included in the curriculum, in Africa, many students at various levels of education are new to variety of information sources and services within and outside the library. In an information society, people have varied needs and the manner in which they get information is essential for their advancement. It is important for them to know and appreciate their information needs, where to get the information, how to get the information, and in the end, how to use it critically. Lack of Information literacy inevitably hampers effective survival in an information society environment (Baro 2010).

It is equally important that African institutions from all levels of education whether primary, secondary, technical and tertiary levels of education to include information literacy education in their educational systems. This is because a primary school student in continuing his or her education at a point would have to fall on information to educate him or herself. A caterer or a carpenter would also have to look for modern development in cooking or new designs in the furniture market in order to render better services to their customers.

2.6 Information Literacy in Higher Education in Ghana.

In Ghana, Bannerman (2000) stipulated that programs exist in individual institutions under various nomenclatures. The University of Cape coast and the University of Development

Studies have credited Information Retrieval courses designed for all students as part of their degree courses. The University of Ghana and Kwame Nkrumah University of Science and Technology have programs specifically tailored for needs of their users.

A study by Lamptey (2008) in the University of Cape Coast shows that there was no obvious effect, of the information retrieval course offered, on students. This course is supposed to help them to effectively and efficiently search for and use information. Anafo (2009) also found out in his study of the undergraduate students of Ashesi University that most of the student's information literacy was low. That they have problems in the use of the Boolean operators and evaluation of information from websites.

The study of Dadzie (2009) which accounts on information literacy initiatives in two university libraries stated that library literacy, computer literacy and communication skills should be carried out in the schools. She also argued that adding information literacy into course design, delivery and assessment provides all students with equal opportunity to become information literate. She went on to explain that if these skills should be fixed into the courses or even in the curriculum, most students would not even be aware that information literacy is happening. Students would eventually adjust to this new cultural context of learning. She made a recommendation that course delivery of these information literacy skills should be online, where students would use a full range of library and electronic resources. Adding information literacy into courses or curriculum should be done step by step from the first year program (Level 100) to final year program (level 400) (Dadzie, 2007).

Aggrey (2009) in his studies in information literacy among second and third year Medical student of the University of Ghana discovered that information literacy among students was generally low that they more familiar with word processing, less familiar with presentation, spread sheet and electronic mail and not familiar with databases and search engines. He recommended that information literacy should be offered at the first year level.

A preliminary investigation which corresponds with Dadzie (2007) asserted that computer literacy, an important component of information literacy, is offered at the Information and Communications Technology Directorate of the University of Ghana. She suggested in her study that, the library orientation and user education programmes, at the University of Ghana, should be modified and repackaged as an information literacy course and should be credit bearing.

In the University of Ghana, the faculty of Agriculture, by the help of Balme Library professionals, could include key information literacy skills such as research and critical thinking skills, use of the Internet to locate resources, use of library resources and use of referencing format, into assignments and projects (Dadzie, 2007). She suggested in her study on the course content that, it should incorporate literature searching for dissertations/projects/theses, use of e-journal, and the use and importance of search engines and techniques.

Information literacy at the University of Ghana has been relegated to the background. This needs to be corrected because information literacy is a very vital component of education.

Without information literacy skills the purpose of education is defeated since educated persons should be able to overcome information overload and data smog which are the occurrences in the search for information in the today. There is the need for information literacy training for all the citizens of the country from the primary level to the tertiary level of education. This is because the ability of individuals to self-educate themselves would move the country forward.

2.7 Theoretical Framework

A theory is a coherent group of general propositions used to explain a phenomenon. Theoretical orientation is a very important aspect in a social research since research is basically set against an existing theory (Twumasi, 2001). Twumasi (2001) believes that there is a basic interrelationship between theory and research as a researcher will not be able to operate effectively without a theory. A body of theories is therefore needed to aid in the construction of one's research model and to guide one's analysis.

According to Dale (1998), theories enable researchers to draw new conclusions, improve action, and generate more sophisticated theories. Theories are drawn from observations and confirmed observations. For example, Isaac Newton saw the apple fall and thus, developed the theory of gravity. Again, a theory is a system for explaining phenomena which states, constructs and the laws that interrelate the constructs to one another (Mugenda and Mugenda, 1999).

Over the years information literacy became an area of interest to several academicians which led to the development of several models. This study adopted Doyles' (1999) theory of information literacy. The theory identifies an information literate person as one who:

1. Recognizes that information that is accurate and complete is the basis for intelligent decision making;
2. Recognizes the need for information;
3. Integrates new information into an existing body of knowledge; and
4. Evaluates information, organizes information, and uses information for critical thinking and problem solving.

Doyle explains his theory or framework as follows:

Recognizes that information that is accurate and complete is the basis for intelligent decision making.

The information literate person retrieves information online or personally uses a variety of methods. This includes the use of search systems to retrieve information in a variety of formats, classification schemes and other systems to locate information resources within the library or to identify specific sites for physical exploration, using specialized online or in person services available at the institution to retrieve information needed and other forms of inquiry to retrieve primary information. This is done to ensure that the information retrieved is reliable for decision making. This is the way of accessing needed information effectively and efficiently and leads to accessing documents critically (American Library Association, 2000). Shanahan (2006) stated that “The successful independent learner knows where to look for information in their discipline area”

Campbell (2004) was of the view that education and training are needed to help people especially students acquire the skills to not just locate, but also to evaluate information sources,

and therefore information literacy indicators must include this skill. Dadzie (2008) also agreed that librarians have the responsibility to lead the information literacy drive since they have custodial duties of collecting, organizing and providing access to the multiple forms and sources of information in timely manner so that information is used properly. Aggrey (2009), Anafo (2009) and Lamptey (2008) discovered in their studies that most students did not know how to look for information needed by adopting various strategies, tools and document types. In the United Kingdom a survey by Cole and Kelsey (2004) indicated that most of the participants were unable to use electronic databases for searching. In another study conducted in United States of America by Pravikoff et al. (2005), most students were not sure of the ability to search for information using the online databases that is the CINAHL and MEDLINE. Jacob et al. (2003) discovered in an information program for the United States that students identified using the electronic databases the most useful competency learned from the program. Tarrant et al. (2007) also found out that students did not feel competent in choosing suitable databases for literature searches, using a citation to locate a journal article, conducting online bibliographic searches and using information technology to examine clinical problems.

Recognizes the need for information

The information literate person determines the nature and extent of the information needed, that is, the student should be able to define the need for information by developing a thesis statement and formulating questions based on the information needed, exploring general information sources to increase familiarity with the topic, defining or modifying the information needed to achieve a manageable focus, identifying key concepts and terms that

describe the information need and recognizing that existing information can be combined with original thought, experimentation, and analysis to produce new information. It is the first step also in differentiating information literacy from the passive reception of given information. This awareness of need is not a static capacity but one that needs to be applied to each and every situation as it arises (Campbell 2004). The American Library Association (2000) is of the view that this concept is a determining factor of the extent to which information is needed. Aggrey (2009) and Anafo (2009) in their studies discovered that most students did not know how to formulate keywords to search for relevant information.

Integrates new information into an existing body of knowledge;

An information literate person should be able to incorporate selected information into his or her knowledge base, that is, he or she should be able to summarize the main ideas to be extracted from the information gathered. This can be done by reading the text and selecting main ideas, restating textual concepts in his/her own words and selecting information accurately and identifying precise material that can then be appropriately quoted. The Chartered Institute of Library and Information Professionals (CILIP) Policy Advisory Groups (PAGs) described information literacy as a means of providing all members of society with the information competences essential to function effectively within society.

Evaluate information, organize information, and use information for critical thinking and problem solving.

An information literate person evaluates information and its sources critically by articulating and applying initial criteria for evaluating both the information and its sources, examining and

comparing information from various sources in order to evaluate reliability, validity, accuracy, authority, timeliness, and point of view or bias. An information literate person also analyzes the structure and logic of support arguments, recognizes the cultural, physical, or other context within which the information was created and understands the impact of context on and interpreting the information. Information literacy is similar to, and cannot be divorced from, critical thinking (Baro 2010). Dadzie (2007) asserts that people are faced with abundance of information from the varieties of sources and that the questions about the qualities of information obtained from the internet or other multimedia, pose threats in terms of authenticity, validity and reliability of the information. Anafo (2008) found out that most of the students at Ashesi University College use information from the internet without evaluating it. This result conflicts with Lamptey (2009) who reported that quite a number of students know how to evaluate an internet site.

In the evaluation of information there is the need to use information ethically or accurately so that users of information do not infringe on copyright laws and plagiarism. Aggrey (2009) referred to the legal and ethical use of information as the last concept used to measure information literacy. He stated that it is the ability to put the results of a search to good use. Aggrey (2009) found out in his study that half of the respondents identified the correct citation of a journal article and few were able to evaluate a website. In a similar study by Lamptey (2008) most of the students use information legally and ethically. This was one of the qualities of an information literate discussed by (Rockman 2004). (Rockman 2004) stated categorically that information literate persons should be able to understand the economic, legal, and social issues surrounding the use of information, and access and use information ethically and legally.

Aggrey (2009), Anafo (2009) and Lamptey (2008) found out in their studies that on the average, students were knowledgeable about copyright and plagiarism issues.

In this study the variables that was used to determine who an information literate person is includes the student's ability to recognize accurate information, the ability to determine information need, integrate new information into an existing body of knowledge and the ability to evaluate information, organize information, use information for critical thinking and problem solving.

It can be deduced from the above discussions that information literacy is very vital for the growth of the society in which we live. Information literacy enables individuals to make informed decisions on their own. From the above, the theory that governs information literacy can also be considered as the characteristics that an information literacy person should possess. This means that information should be able to locate needed information, evaluate the retrieved information, evaluate retrieved information and use information ethically and legally.

CHAPTER THREE

METHODOLOGY

3.1 Introduction

This chapter presents a description of the research design, population, sample size, sample technique, instrumentations and data analysis, and representation of the study.

3.2 Research design

The survey method was used to conduct the research. A survey is credited for its flexibility in asking questions and analysis of responses. It allows a small sample of the population to be selected and used to generalize the findings for a large group. Spata (2003) stated that survey research is used to gather information about people's feelings, opinion, beliefs, attitudes and behaviors through self-report questionnaires. Newman (2007) also acceded that surveys are appropriate for research questions about beliefs or behaviours. They are strongest when the answers people give to questions measure variables.

3.3 Population

The population is the group that is of interest to the researcher, the group from whom the researcher will generalize the result of the study (Peil 1995). The target population of this study was the graduate students of the University of Ghana whose total is two thousand eight hundred and seventy- six (2876), (University of Ghana Basic Statistic 2010). Peil (1995) also made it clear that the elements which make up the population should be identical, either by living

together in a defined territory or having a common nationality. The post graduate students of the University of Ghana belong to a common group.

Even though there are PhD students, they were excluded in data collection because they are a group of students that are difficult to locate. This is because they do not meet as a class and most of them do not stay on campus. The number of PhD students are 229. Thus, when subtracted the actual population for the study is two thousand six hundred and forty-three (2643).

3.4 Sample size

Based on the population above the researcher used 10% of the total population which is approximately two hundred (265) students. This idea by the researcher was influenced by Neuman (2007). Neuman (2007) argues that for small populations (under 1,000), a researcher needs a large sampling ratio (about 30%) but for a moderately large population that is (1,000) a smaller sampling ratio (about 10 %) is needed to be equally accurate.

3.5 Sampling technique

The convenience sampling technique was used to select students to obtain the target population from the different levels of programs. Neuman (2006) defined convenient sampling as a non-random sample in which the researcher selects anyone he or she happens to come across. This is a sampling method in which the researcher will decide on the choice of sampling unit based upon their convenience. This may be used in cases where some respondents will not cooperate in filling the questionnaire. Since the post graduate students are mostly very busy, some of

them may not be willing to answer the questionnaire, hence the reason for using this sampling size technique.

3.6 Instrumentation

Fraenkel and Wallen (2009) hold the view that instrumentation is the whole process of collecting data. This means that it will not only involve the selection of instruments but also include the condition under which instruments are established. It stipulates where data will be collected, when it will be collected and how to collect the data.

Questionnaire and observation was used to collect data in this study. The questionnaire method represents an inexpensive way to collect data. Questionnaires can be quickly scored, each person is asked the same set of questions in a similar way and no trained person is needed to administer the survey or score the data. Questionnaire data is easily expressed in numerical form and thus, represents the most popular quantitative method (Creasey, 2005). Questions were asked under the following headings; biographical information, library orientation, identifying information needs, locating information needed, evaluating retrieved information and ethical and legal use of information.

3.7 Method of Data analysis

The data analysis was carried out using the Statistical Package for Social Sciences (SPSS); this tool is generally recognized as good in handling social science data and contains most of the statistical formula and procedures. The data was coded, captured and analyzed and results were presented in descriptive statistics such as frequencies and percentages. The responses given by

the respondent were presented in the form of tables and graphs for illustration. The results were organized into sections to establish relationships between variables. The analysis was based on the stated objectives of the study.

CHAPTER FOUR

ANALYSIS AND DISCUSSION OF FINDINGS

4.1 Introduction

This chapter dwells on the subject of analysis and presentation of the data, and discussion of the findings. According to Kumar (2005) tables and graphs are the most common methods of presenting analyzed data. In total, 265 questionnaires were distributed and after continuous follow up, 151 were retrieved. This gave a response rate of 56.98%. Questions that were posed to the respondents include questions on the background of the students, library orientation, that is, whether they have attended classes on library use, concept identification in sentences or phrases, search strategy, search tool, document type, evaluation of information and ethical and legal use of information. Below are the data analysis and discussions of the findings from the study.

4.2 Biographical Information of Respondents

The biographical data has to do with basic information about the respondents; this includes their age, year of entry, programs enrolled and so on. The results show that out of 151 graduate students 135 respondents (89.4%) were of the 2010/2011 year group and 16 respondents (10.6%) were of the 2009/2010 year group, 98(64.9%) were males and 53(35%) were females. Among the respondents, 115 (76.2%) were between the ages of 20 to 30; 28 (18.5%) were in the age range of 31 to 40 and 8(5.3%) were within the age range of 41 and above. 80(53%) of them were Mphil students; 32(21.2%) were MBA students; 1(0.7%) was an MPA student; 34(22.5%) were MA students and 4 (2.6%) were MFA students. Out of these 108 respondents

(71.5%) humanities; 5 respondents (3.3%) were arts students and 38 respondents (25.2%) were science students. This result is represented in table 4.1.

Table 4.1: Biographical Information of Respondents

Biographical Information	Frequency	Percentage
Year of entry		
2010/2011	135	89.4
2009/2010	16	10.6
Total	151	100
Age groups		
20-30	115	76.2
31-40	28	18.5
41 and above	8	5.3
Total	151	100
Program enrolled on		
Mphil	80	53
MBA	32	21.2

MPA	1	0.7
MA	34	22.5
MFA	4	2.6
TOTAL	151	100
Program		
Humanities	108	71.5
Arts	5	3.3
Science	38	25.2
Total	151	100

4.3 Library Orientation Program

Library orientation is a program organized mostly for new users of a library, where users are taken to the library and shown basic things like where the reference desk is, where they can find the reference books and how they can use the catalogue among others. The respondents were asked if they had participated in the library orientation program before. This was to know if they had undergone some form of information literacy training.

From the results of the findings, 83(55%) had attended the library orientation program that was organized by Balme library for new students whereas 68(45%) had not. This is represented in table 4.1.

Table 4.2: Library Orientation Program

Attendance	Frequency	Percentage
Number who attended the orientation	83	55
Number who did not attend	63	41.7
Non response	5	3.3
Total	151	100

4.4 Concept Identification in Sentences or Phrases (Identification of Information Needs).

Concept identification is the ability to bring out all the key words that represent a topic. Respondents were asked questions on various topics and were requested to identify the different keywords in those topics which would help them find relevant information. In all, respondents were asked five questions. In two instances 108(71.5%) respondents were able to choose the right terms. In another instance, 77 (51%) respondents were able to choose the correct keywords. In the fourth case, 94 (63.3%) respondents stated the right answer and 58 (38.4%) respondents chose the right words for the last question. On the average 89 (58.9%) of the respondents knew how to derive key words from the topics whereas 62 (41%) did not know how to. This shows that on the average a greater number of respondents had the ability to identify their information needs. It is also disturbing to realize that, the number that did not have the ability to do this was quite large. This result can be seen in table 4.2.

Table 4.3: Concept Identification in sentences or phrases.

Sentences or Phrases.	Frequency		Total
	Students who knew how to identify key words from sentences or phrases.	Students who did not know how to identify key words from sentences or phrases.	
The abuse of democracy in Ghana	108 (71%)	43 (28.5%)	151(100%)
Recent development in breast feeding among teenage mothers across the country	108 (71%)	43 (28.5%)	151(100%)
Preventing child trafficking in the world	77 (51%)	74 (49%)	151(100%)
capital punishment as deterrent for crime	94 (63.3%)	57 (37.7%)	151(100%)
Measures currently used across the Country to decrease damage to natural environment	58 (38.4%)	93 (61.6%)	151(100%)

4.5. Search Strategy

A search strategy is a comprehensive plan for finding information which includes defining the information needs and determining the form in which it is needed if it exists, where it is located, how it is organized and how to retrieve it (Glossary of Education 2011). Search strategy is the means through which information is sought depending on the kind of information in need. This includes the use of scholarly journals, library catalogue and the Boolean operators. A scholarly journal is a peer reviewed collection of articles. The library catalogue is a record on all the materials that a library contains. Boolean operators allow a

searcher to combine words and phrases which could help limit or expand a search, for example the AND, OR and NOT Boolean operators. Questions were asked to determine the strategies that students adopted to find scholarly journal articles and the use of a library catalogue to find documents. These questions were asked in order to investigate the strategies adopted by the students in their search.

With regards to the strategy that students used in locating scholarly journal articles, 39 respondents (11.9%) out of 151 respondents knew where to locate scholarly journal articles but 112 (86.8%) did not know where to locate scholarly journals. The results also showed that out of 151 (100) respondents only 53 (35.1 %) respondents knew how to use a library catalogue for a search. In another instance 119 respondents (78.8%) knew how to search for all the works of a particular author by using the author's name in a library catalogue. With regards to the use of the Boolean operators, only 49 (32.5%) respondents knew how to use the Boolean operators (an example is the "OR" operator). On the average only 64 (42.4%) of the respondents were well skilled in search strategies whilst 87 (57.6%) were not. This result is represented in table 4.3

Table 4.4: Search Strategies used in Locating Documents

Search Strategy	Frequency		Total
	Student who knew how to use search strategies.	Student who did not know how to use search strategies.	
Finding a scholarly journal	39 (11.9%)	122 (80.7%)	151(100%)
When a document cannot be found in a catalogue	53 (35.1%)	98 (64.9%)	151(100%)
Searching by author	115 (78.8%)	36 (23.8%)	151(100%)
The use Boolean operators	49(32.5%)	102 (67.5%)	151(100%)

4.6 Search Tools

Search tools are tools used in searching for information. Some of these tools include library catalogues, databases, bibliographies, search engines and meta search engines. A database is a collection of information on one or more related topics. The bibliography lists materials that relate to a particular discipline or subject scope. A search engine helps in finding information on the internet. It is a software program that searches for sites based on the words that is used as a search term. A Meta search engine is used for finding information on the internet and helps in searching multiple search engines simultaneously. The information literacy levels of respondents were revealed by the answers they gave in reply to a set question that pertained to these search tools.

These questions sought to find out whether students knew what the various tools were used for, and how to use them. In finding articles, 75 (49.7%) respondents stated that they would search the online journal databases in the library. In table 4.4, the response also indicated that 68 (45%) students knew how to use search engines such as Yahoo or Google and 63 (41.7%) students knew what to use the bibliography for. In response to the usage of the library catalogue, 33 (21.9%) students knew how to use the catalogue. Only 26 students (17.2%) knew how to use a meta search engine and 83(55%) students indicated that they had knowledge of the function of the library catalogue, whilst 68 students (45%) did not know the items contained in a library catalogue. Generally, only 58 (38.4%) of the students knew how to use search tools in their search for information.

Table 4.5: Search Tools used in Locating Documents.

Search Tool	Frequency		Total
	Students who knew how to use search tools	Students who did not know how to use search tools	
Online journal articles or journal databases	75 (49.7%)	76 (50.3%)	151(100%)
Search engines	68 (45%)	83 (55%)	151(100%)
Bibliographies	63 (41.7%)	88 (58.3%)	151(100%)
Using a Library catalogue to find an article	33 (21.9%)	118 (78.1%)	151(100%)
Meta search engines	26 (17.2%)	125 (82.8%)	151(100%)

Items found in a library catalogue	83 (55%)	68 (45%)	151(100%)
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4.7 Document Type

One important factor that is used to measure the information literacy level is one's degree of familiarity with the various reference materials. Reference books are designed to be consulted from time to time for specific information. These include the encyclopedia, almanac, dictionary, biography and others. An encyclopedia is a book that contains a general overview and summary of knowledge on various subjects in the world. An almanac is a collection of useful information about countries, personalities, events, subjects and so on. A dictionary is a book that contains language or terms of a subject organized according to a particular order giving meanings, pronunciations, spelling, syllabifications use and so on. A biography is a document containing information about popular people in the world. A periodical index is a regular compilation of titles of articles that appear in current primary source journals. Questions were asked on what the almanac; biography, dictionary, encyclopedia, journals and periodical index were used for. This was done to find out whether the respondents knew how to use the various document types.

The outcome of the findings showed that 36 respondents (23.8%) knew what an encyclopedia was used for. Out of the 151 respondents, 102 (67.5%) knew what a journal was used for. Only 29 respondents (19.2%) knew what a periodical index was used for. Concerning the dictionary, 83 respondents (55%) knew what a dictionary was used for. Also 21 respondents (13.9%) knew that one could use the almanac to find information on basic facts and 89 respondents (58.9%) knew what the biography was used for. On the average 39.7% of the respondents were familiar

with the various document types whereas 60.3% were not. The results discussed is represented in table 4.6.

Table 4.6: The use of Document Types

Documents	Frequency		Total
	Students who identified the document types	Student who could not identify the document types.	
Encyclopedia	36 (23.8%)	115 (76.2%)	151(100%)
Journal	102 (67.5%)	49 (32.5%)	151(100%)
Periodical index	29 (19.2%)	122 (80.8%)	151(100%)
Dictionary	83 (55%)	68 (45%)	151(100%)
Almanac	21 (13.9%)	130 (86.1%)	151(100%)
Biography	89 (58.9%)	62 (41.1)	151(100%)

4.8 Evaluation of Information

This is another important criterion that needs to be used to test the information literacy level of a person. It has become necessary because of the increase in the use of technology to produce information. The information produced on the internet and the websites ranges from information that has been peer reviewed and those which have not. This means that it is possible to have access to wrong information and right information. The information literate person is required to know how to distinguish between right and wrong information. This is referred to as evaluation of information. Questions were asked on how to evaluate a website on

the Internet, how to evaluate the quality of an internet and ways of evaluating the reliability or authority of a source.

When respondents were asked how they evaluated a website, 65 respondents (43%) chose the authority, purpose and currency of the website which is the right option and 34 respondents (22.5%) indicated that to evaluate the quality of an internet site, the responsibility for the site must be clearly indicated. In evaluating the reliability or authority of a source, 73 respondents (48.3%) believed that the useful way of evaluating the authority of a source was looking for the author, 72 respondents (47.7%) believed that the useful way of evaluating the authority of a source was looking for the date of publication and 66 respondents (43.7%) believed that the useful way of evaluating the authority of a source was looking for the publisher. On the average 62 (41%) of the respondents knew how to evaluate information whereas 89 (58.9%) did not know how. Table 4.7 summarizes the results analyzed here.

Table 4.7: Evaluating Information

Evaluating Information	Frequency		Total
	Students who knew how to evaluate information	Students who did not know how to evaluate information	
Website	65 (43%)	86 (57%)	151(100%)
Internet	34 (22.5%)	117 (77.5%)	151(100%)
Author	73 (48.3%)	78 (51.7%)	151(100%)
Date	72 (47.7%)	79 (51.3%)	151(100%)
Publisher	66 (43.7%)	85 (56.3%)	151(100%)

4.9 Ethical and Legal use of Information

The ethical and legal uses of information are integral when it comes to measuring information literacy levels of people. The ethical use of information is citing and referencing the works of other people, whether used in assignments or thesis. This actually helps to prevent plagiarism. Plagiarism is using a person's work without acknowledging them through the use of references and in-text citation. The legal uses of information have to do with copyright issues, where a person is not allowed to copy the entire work of another person without permission.

Respondents were required to identify the various issues on the legal and ethical use of information. This includes the ability of the students to cite journal articles properly. The result here shows that 67 respondents (44.4%) knew how to cite a journal article. Concerning in-text citation of a book, 71 respondents (47%) indicated that they knew how to do an in-text citation. With regards to preventing plagiarism 46 respondents (30.5%) chose the right option and 95 respondents (62.9%) knew when the copyright law had been infringed. In total, only 70 (46.2%) knew how to use information legally and ethically whereas 81 (53.8%) did not know how to use information legally and ethically. The result is represented in table 4.8.

Table 4.8: The Legal and Ethical use of Information

Legal and ethical use of information	Frequency		Total
	Students who knew how to use information legally and ethically	Students who did not know how to use information legally and ethically	
Citing a journal article	67 (44.4%)	84 (55.6%)	151(100%)
In-text citation	71 (47%)	80 (53%)	151(100%)
How to avoid plagiarism	46 (30.5%)	105 (69.5%)	151(100%)
When copyright law is infringed	95 (62.9%)	56 (37.1%)	151(100%)

4.10 DISCUSSION OF FINDINGS

The discussion of the findings is based on the outcome or the result of the responses to the questionnaire and this includes the following:

4.10.1 Library Orientation Program

Library orientation is one way of educating students to be information literate. It involves taking the freshmen or new students round the library and showing them the various sections of the library, where the catalogue is located, showing them the reference staff who would assist them when they need help and other basic things about the library. There are other kinds of services that the library offers its clients for them to be able to use the library resources. This includes user education and bibliographic instruction. This was what Bannerman (2000) meant when she stated in her paper that information literacy exist in individual institutions under various nomenclatures. The findings indicated that most of the students that is, 83 respondents (55%) have attended the library orientation program. The program is organized for freshmen during the first semester as part of their orientation, which in itself may be inadequate in the sense that, students may easily forget some of the things that were taught. According to Dadzie (2007), the reverse is true in the case of the Cape Coast Library Information Retrieval Course which is offered as a course for first year students. This may be more adequate than the orientation held at the University of Ghana, considering the duration. Dennis (2004) also indicated in his findings that the library literacy training for students at the Balme library is too limited. It may be that some of the students could not attend the library orientation program because enough time was not allotted for it.

4.10.2 Identifying Information needs (Concept Identification)

This is the ability to bring out all the related words or phrases that will help in searching so that the information needed will be retrieved. This is where the information literate person determines the nature and extent of the information needed, that is, the student should be able to define the need for information by developing a thesis statement and formulating questions based on the information need, exploring general information sources to increase familiarity with the topic, defining or modifying the information need to achieve a manageable focus and identifying key concepts and terms that describe the information need ALA (2000). This awareness of need is not a static capacity but one that needs to be applied to each and every situation as it arises, (Campbell 2004). Doyle (1992) is of the view that the need for information would lead a person to identify needed concepts as an information literate person. The American Library Association (2000) asserted that the concept served as the determinacy of the extent to which information is needed. Shanahan (2006) affirmed that the information literate person knows how to find information to meet their information need. This is the evidenced of the ability to construct an effective search statement.

The result displayed in the analysis shows that most of the post graduate students 89 (58.9%) knew how to identify their information needs. This could be attributed to the fact that the act of concept identification is easy to embark on. It could also be that students readily identify their information needs because it involves the exact words of the topic they are dealing with or taking an aspect of the topic and forming a search statement with it.

Another study conducted by Aggrey (2009) indicated that most of the students did not know how to identify concepts. Anafo (2009) also reported in his study that an average of 60% also did not know how to identify a key word for an effective search. Boakye (1998) indicated in his study that most students lack the skill for formulating keywords for their search. The contrast in result with the current study may be as a result of the characteristics of Aggrey, Anafo and Bokye's target population as they were undergraduate students whilst the current populations are post graduate students. It is obvious that post graduate students do indulge in more information literate activities than under graduate students. So they might have undergone several practices of identifying key words in topics in writing assignments and term papers.

4.10.3 Locating Information needed

This is the process of retrieving relevant information by using various means. This includes the use of search strategies, search tools and document types. After identifying the key terms in a topic there is the need to adopt search strategies for the search of relevant documents. This is to find out the kind of strategies the students employed for searching. It is one of the most important factors used to test the information literacy levels of the respondents. In contrast to the fact that most students were well skilled in concept identification, most of them did not know how to locate their information needs. This is shown in the discussion of the three aspects of locating information needed.

Search strategy is the means through which information is sought depending on the kind of information in need. The results point to the fact that most of the students did not know how to

locate scholarly journals. Most of them did not really know what the library catalogue is, and they were also not conversant with the Boolean operators and how to search for information by a particular author. This may be because; this stage of information literacy is much more technical. However, it is a requirement for students to get access to the right kind of information in need. The outcome of the study showed that there is inadequate information literacy training for students hence reflecting in the low level of search strategies among students.

Lamprey (2008) found out that few of the students knew how to use the card catalogue to look for information. She attributed it to the difficulty of the question. Aggrey (2009) also found out in his study that only half of the students knew how to use the Boolean operators. Also, that they had little knowledge of Boolean operators while Lamprey (2008) also stated that only few students were well skilled in the use of the Boolean logic. This result was also confirmed by Anafo (2009). Tarrant et al. (2007) also reported in a study that students did not feel competent in using citations to locate journal articles.

Search tools are also used in finding information and this includes library catalogues, databases, bibliographies, meta search engines and search engines. The outcome of the study showed that 58 (38.4%) of the students knew how to use search tools for searching for relevant documents. The low turnout in the use of the search tools can also be attributed to inadequate or non-existent information literacy training. Perhaps the students, who indicated their ability to use the search tools asked the librarian to guide them through a search at the library, learnt it by themselves or guessed the answer to the questions asked. Aggrey (2009) found out that most of the respondents easily identified the use of a card catalogue as a search tool and also had a good

knowledge about search engines. Anafo (2009) also in his study found out that majority of the students did not know how to find information using a library catalogue. In the United Kingdom a survey by Cole and Kelsey (2004) indicated that most of the participants were unable to use electronic databases for searching. In another study conducted in the United States by Pravikoff et al. (2005), most students were not sure of the ability to search for information using the online databases that is the CINAHL and MEDILINE.

There are various types of documents that can be found in a library. This includes dictionaries, encyclopedia, almanac and others. To find out the information literacy level of the respondents, the researcher asked questions on the different kinds of document types. While most of the respondents knew how to use the dictionary, journal and biography, most of them did not know the use of periodical index, almanac and encyclopedia. This may be as a result of the frequent use of the dictionary, journals and biography from the basic educational levels right down to higher level of education more than the other documents. Aggrey (2009) found out that most students knew how to use the various document types. Aggrey's result is in contrast with the findings of the current study because of the differences in objectives in his study and the current one.

4.10.4 Evaluating the Retrieved Information

Another criterion for testing the information literacy levels of people is how they evaluate the information they retrieve. An information literate person evaluates information and its sources critically by articulating and applying initial criteria for evaluating both the information and its

sources, examining and comparing information from various sources in order to evaluate reliability, validity, accuracy, authority, timeliness, and point of view or bias. It involves evaluating a web site, an internet site and the authenticity of a source (ALA 2000). This was what Dadzie (2007) was referring to when she indicated that people are faced with abundant information from the varieties of sources and that the questions about the qualities of information obtained from the internet or other multimedia, pose threats in terms of authenticity, validity and reliability of the information.

From the result student's ability to evaluate information was poor. It is possible that more of the respondents were exposed to accessing information that is not valid, reliable and authentic and using them for their academic work without evaluation. This may be because students were not taught how to evaluate information on the various media of information. Anafo (2009) found out that most students use the internet without evaluating information they find on it. Somi and de Jager (2005) confirm the result above in their report after their study at the University of Fort Hare Library. They argued that students in the university still have difficulty in finding, critically evaluating and using information.

4.10.5 Legal and Ethical use of Information

The legal and ethical use of information is one of the major factors to be considered in information literacy. This is where an information literate person selects and uses an appropriate documentation style for citing sources; demonstrates awareness of plagiarism and of copyright, intellectual property and fair use laws (Campbell 2004). This is another important

factor of measuring the information literacy levels of respondents. The legal and ethical use of information is very important because most of the information accessed on all the various media were produced by individuals who worked very hard to produce them. The results of their works belong to them, thus the need to acknowledge them. This includes citation, referencing and copyright issues. The American Library Association (2000) refers to the legal and ethical use of information in understanding the economic, legal and social issues surrounding information use, and access and use of information ethically and legally. Doyle (1992) is of the stand that information literacy supports good citizenship that information literacy skills would serve as a support for student's developing role as good citizens.

The results of this study showed that only some 70 (46%) of the students knew how to use information legally and ethically. This also points to the fact that information literacy courses are not offered at the university. Aggrey (2009) referred to the legal and ethical use of information as the last concept used to measure information literacy that it is the ability to put the results of a search to good use. He found out in his study that, half of the respondents identified the correct citation of a journal article and few were able to evaluate a website. Lamprey (2008) discovered that most of the students use information legally and ethically. Tarrant et al (2007) found out that student have low knowledge in academic writing using the APA format (a style of referencing). This was one of the qualities of an information literate person discussed by Rockman (2004). She stated categorically that information literate persons should be able to understand the economic, legal, and social issues surrounding the use of information, and access and use information ethically and legally.

From the above discussion, it could be seen that most of the graduate students lack information literacy skills which should be a common quality of students. Apart from concept identification in sentences or phrases, most of the students were not conversant with the other aspects of information literacy. There is a high incidence of students' inability to be familiar with various document types, the use of search strategy and search tools. The inability to formulate search terms and use the Boolean operator is widespread among most graduate students. Some of the students also have difficulty in citing documents and lack the ability to identify issues in copyright and plagiarism.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

Chapter five is the summary of the key points of the findings, conclusion and recommendations. The objectives of the study include: to find out how graduate students identify their information need; to assess how students locate information needed; to examine how students evaluate the retrieved information; to find out how students use information legally and ethically and to make recommendations with regard to promoting information literacy at the University of Ghana.

5.2 Summary of Findings

From the result of the findings, some students did not attend the library orientation program that is offered at University of Ghana main library (Balme library). This shows that quite a number of them would not know how to use the library and its resources. In spite of this, most of the students knew how to identify their information needs.

5.2.1 Locating Information

With regard to locating information needed, the study revealed that only a few number of graduate students knew how to locate scholarly journals. Also, because most of the students did not take part in the library orientation program most of them did not know how to use the catalogue in the library.

It has been discovered that most of the students were not familiar with the Boolean operators too. They did not know which of them will give them more results during a search. Results of the findings also revealed that most of the graduate students knew that they could do an author search when looking for the works of a particular author.

Concerning items that can be found in search engines like Google or Yahoo, only a hand full of graduate students knew that they could not find information available on books in the library catalogue using a search engine. Also, most of the students did not know what the meta search engine was used for. This showed that most of them use the search engine and the catalogue but did not know exactly what they should be used for. Only a few students at the school knew that they could find more information about a topic by referring to the bibliography.

Most graduate students did not know that the encyclopedia could be used for getting background information on a subject. A greater number of the students showed that a journal is the appropriate place for finding scholarly articles. Only a hand full of them knew that the periodical index could be used to study the trend or development in a particular subject area. Concerning how they find the synonym, antonym and homonym of a word most students indicated the dictionary. This shows that they know how to use the dictionary. Most students however did not know the use of the almanac but more of them knew that the biography was used to find information on popular people.

5.2.2 Evaluating Information

On the evaluation of information, only a few students knew how to evaluate a website and an internet site. A hand full of students knew that to evaluate the authority of a source they will need to use the author, that is; the author's name, publisher and date of publication. This shows that the ability to evaluate the information they retrieve is poor.

5.2.3 The Legal and Ethical use of Information

The legal and ethical use is one of the important aspect of information literacy. However, it was only a few number of the graduate students who knew how to cite a journal article. A greater number of them did not know that the author and the year of publication should be used in an in-text citation. To avoid plagiarism only a handful of students accurately stated the instances of preventing it. Most of the students knew when the copyright law has been infringed.

5.3 Conclusion

Information literacy has become so important due to the fact that there is so much information in the system and the information is in various forms and can be accessed by varied means. People need to choose the right information for decision making hence, the need to acquire skills in choosing the right kind of information. It is for this reason that information literacy needs to be taught in various institutions because it is the only way to avoid being overwhelmed with too much information. Information literacy equips students in higher institutions to be able to identify information needs, locate information needed, evaluate the information they have found, and know the ethical and legal issues concerning the use of the information.

The study revealed that most students were not information literate. Currently there are activities such as library orientation programmes, language study skills and Information Communications Technology (ICT) organized by the University of Ghana aimed at making students information literates. However these activities do not much up to information literacy. Introducing information literacy as part of the curriculum at the post graduate level of education is important because of the need for the right information to be gathered for assignments, term papers, presentations and theses writing. Information literacy must be taught effectively at the graduate level of education so that students will be able to choose the right information for the different purposes information is needed for.

5.4 Recommendations

It is very important to note that information literacy at all levels of education is very crucial for the success of education. The recommendations to the study are as follows;

- i. Library orientation in the University of Ghana should be made compulsory for every freshman (new students) and it should not be done only once. It should be repeated for about two times in the first semester so that students will be acquainted with the library and its resources. The number of students for each section also should be reduced in order to promote interaction between the students and the instructor.

- ii. Information literacy education should be introduced into the curricular of the University of Ghana as a full course which needs to be credit bearing. It should be made a condition for graduating at the university.
- iii. Information literacy course should also be integrated into the research method course that is offered by every department and school at the University of Ghana.
- iv. More library professionals should be employed to teach the course more effectively and efficiently.
- v. Balme library should be more equipped so that the course will be a success. By this the researcher means that there should be training rooms filled with computers so that students will have their practicals. This means that the information literacy course should not be in theory only but also practical sections should be added to it so that it will be effective.
- vi. The computer classes that is held at the ICT center of the University of Ghana should also be taken seriously so that students will be conversant in using the computer effectively in information search activities. If possible it should also be made a compulsory course.
- vii. The Language Studies Skill (LSS) course held at the Language Centre is also another important course offered in the University of Ghana which can help students in referencing, evaluation of information and copyright issues. It is however, important to promote this course by providing more teachers and other equipment needed to undertake the course.

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