Information Literacy and Critical Thinking: An Essential Partnership for Learning in Higher Institutions

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INFORMATION LITERACY AND CRITICAL THINKING: 
AN ESSENTIAL PARTNERSHIP FOR LEARNING 
IN HIGHER INSTITUTIONS.

BY

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Abstract
This paper is an attempt to put forward and analyze the principles guiding the information literacy (IL) and Critical Thinking (CT) in higher main sections. The paper is in five main sections. The first section presents an overview of IL and CT in higher institutions, highlighting its problems and challenges. The second examines the information literacy in higher institutions curriculum. The third section is a brief assessment of who should be responsible for teaching either or both of these concepts. The fourth examines the role of both CT and IL in institutions of the higher education. The fifth examines the roles and necessity of IL Instruction. We argue that both the librarians and faculty members co-operate to assist students to inculcate the necessary training to deal critically with information to analyze and recognize when information is needed.

Background Information
Recent developments in higher education in Nigeria indicate that the quality of the students that gained admission has been changing. Most of these students have an increasingly detailed knowledge of Information and Communication Technology (ICT), expectedly use new habits of communication, and they are eager to learn new forms of education including autonomous online learning. However, they have difficulties when it comes to handling large amounts of information. Literature has also shown that students' information searching skills are initially inadequate (Tilotson, 1995) even at PhD level. In view of this development, Lau (2004) explored the need for the training in information skills in order to confront the challenges of the knowledge society. The library profession has long worked to promote the knowledge and skills necessary to be effective consumers of information.
However, knowing how to look for information, how to analyze it, how to represent it, how to use it will certainly be competencies necessary for any library user to compete in the new knowledge economy.

There are many definitions of Information Literacy (IL) depending on location. Pinto & Sales (2008) sees IL as the development of skills for locating, evaluating, and managing information, which are basic to the process of learning to learn”. Apart from this definition, the most cited definition from the Western World is the one by the Association of College and Research Library (ACRL), a division of the American Library Association (ALA). It notes that “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 (ACRL, 2000). It claims that individuals who are information literate will be able to:

- Access the needed information effectively and efficiently
- Evaluate information and its sources critically
- Incorporate selected information into one’s knowledge base.
- Use information effectively to accomplish a specific purpose
- Understand the economic, legal, and social issues surrounding the use of information ethically and legally.

However, Dorne and Gorman (2006) argue that developed world’s definitions of IL are skill based and assume a high availability of information resources. They opine that this definition may not be operational in the developing world. They therefore define IL as the ability of individuals or groups:

- To be aware of why, how and by whom information is created, communicated and controlled, and how it contributes to the construction of knowledge
- To understand when information can be used to improve their daily living to contribute to the resolution of needs to specific situations, such as at work or school.
- To know how to locate information and to critique its relevance and appropriateness to their context.
- To understand how to integrate relevant appropriate information with what they already know to new construct knowledge that increases their capacity to improve their daily living or to resolve needs related to specific situations that have arisen (Dorner and Gorman, 2006, p. 284).

Many educators would, undoubtedly, argue that the growing prevalence of IL, in
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general, and ACRL's definition in particular, is reflected in the fact that the American Association of Higher Education and the Council of Independent Colleges have both endorsed this definition (Saunders, 2009). Likewise other government institutions, research policy, and government organizations have equally endorsed skills of information literacy to critical thinking and lifelong learning (Jones, 1995).

Higher education in Nigeria is making efforts to inculcate the necessary training to deal critically with information to analyze it, to select appropriate contents, and to incorporate information that is relevant into a personal knowledge base. For example University of Nigeria, Nsukka is now teaching the Use of Computer and it recently detached the Use of Library and Study skills from the Use of English and the librarians who are grounded on the practical aspect of Librarianship are now teaching it. In this case, students are being encouraged to be sufficiently instructed in developing information skills and competencies in order to foster the process of learning. As rightly suggested by Keefer (2005), IL requirements can bridge the gap between students' perception of the library and their need to understand quality information.

Critical thinking (CT) programme in higher institutions strives to give students the skills they need to evaluate resources effectively and to use the latest technology available to retrieve and synthesize information. No doubt CT is a powerful tool students can use to improve the quality of their work regardless of their field of study. CT involves among others thinking with purpose: considering assumptions, biases, and conclusions of various viewpoints. By this the students will apply logic which would enrich their research work with a additional information.

Information literacy in Curriculum of Higher Institutions

The World Book Encyclopedia (2004) define curriculum as a school's planned educational programme or the educational experiences of students. From the numerous definitions of the term curriculum, this article focuses on two approaches: Firstly, curriculum is viewed as the content of instruction in a subject area within the school system which is selected on the basis of educational considerations and organized into topics and structures according to special principles; secondly curriculum is viewed as an overall plan of goals, subjects, timetables,
materials, and intended learning outcomes of institutionalized teaching and learning as expressed in official, more-or-less standard, syllabi, usually adopted by educational authorities (Baller, 2000). In view of the above, Hunt and Birks (2004) opined that IL must be an integral part of the curriculum so that skills are taught and developed in context and students can apply the learning to real situation. Much has been written on the need to integrate IL into the curriculum of higher institutions. For example, Saunders (2009) also argued that increasing amount of information and greater complexity in accessing and using information have resulted in greater recognition throughout academe of the necessity for IL skills. He also noted that accreditation organizations, both regional and professionaldisciplinary, develop a stronger stand on information literacy as a core competency and have aggressively promoted the inclusion of information literacy instruction at both the undergraduate and graduate levels. Going beyond previous support for information literacy, these organizations clearly lay out expectations of IL learning outcomes as part of the curriculum”. It is impossible to deny that IL will not change the way in which users conduct research. Grafstein (2004) stressed that the integration of IL into the college curriculum—closing of the gap between the library and the classroom—is an essential component in developing information literate graduates.

Similarly, Snavely and Cooper (1997) are of the opinion that IL should be integrated into the curriculum, but Librarians and teaching faculty members, must work in concert to provide multiple opportunities for students to be exposed to information literacy-building activities. Gorman (2001) pointed out, “today’s library instruction is an essential part of a general-education curriculum” and predicts that students, if exposed early in higher education, “will possess the ability to profit from continuing human-to-human reference services. Increasing amounts of information and greater complexity in accessing and using information have resulted in greater recognition of the need to integrate IL in the curriculum of higher education. Bruce (2004) argued that “while curriculum practices involving active, collaborative, resource-based learning are often pointed to as the ideal, they are still innovative practices. He further stated, that while effective information use arguably underpins enquiry learning, problem based learning, action learning and various other...
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student-centred modes, an effective information literacy education requires explicit attention to information processes; as well as the careful crafting of real world information practices, and meaningful reflection, into curricula.

Recognizing the important place of information literacy in the life of a well educated person the Government of the United States and Australia, have integrated IL into their national education plan (Andretta cited in Pinto and Sales, 2008). At the same time, associations of information professional education in those countries have all played significant roles in its promotion and have contributed to the integration of IL in the practices of higher education. In Nigeria, not much is known about the integration of IL into the programme of higher education. However, Owusu-Ansah (2004) advises a gradual but ultimately complete integration of IL instruction into the general higher education curriculum.

Information Literacy Initiatives from the Librarians and Faculty Members

There has been a widespread debate among educators on who should deliver IL instruction to students, librarians or faculty members? There is no doubt that students need to be sufficiently instructed in developing information skills. They need to familiarize themselves with all aspects of information and knowledge development. However, it is crucial to note that information literacy and lifelong learning are key elements for effectively participating in the information society.

Arguing on why the faculty members should teach IL, Johnson and Webber (2003) hold that information literacy is a discipline in and of itself and that it will only be taken seriously in the currency of higher education if disciplinary faculty teaches the credit-bearing class. Similarly, Rader (1991) has rightly observed that “information literacy programmes will also involve teaching users evaluation of information, problem solving and critical thinking skills, and librarians have generally neither been trained for nor taught these skills.” Also, supporting the argument that faculty members should teach IL, Larking and Pines (2008) noted that “many of their colleagues originally were not interested in incorporating IL into their course but came to realize that, since they value IL as part of higher education, they should take responsibility for conveying these skills to their students”. The above pose is suggestive of the controversial nature of this
discourse. Similarly, Albitz (2007) argued that because higher education places librarians in a subordinate role within the institutional hierarchy even if they have faculty status equal to teaching faculty, they may not believe they are empowered to take the lead in instituting an IL programme.

Another author, Rothenberg (cited by Thompson, 2003) asked a pertinent question when he says, so where are the librarians in the history of IL? At an early stage the volume of information and the method of accessing, organizing, and utilizing it continue to increase; the skills necessary to find and use that information effectively also increase in complexity. According to Pinto and Sales (2008), librarians have conducted courses aimed at teaching how to manage information in an isolated fashion and not connected to actual curricula. With the development of a collaborative attitude between institutions of higher education and libraries, these activities are now centering on information literacy with a clear objective to learn how to learn. They identified those courses as:

- Orientation for first year students with the aim of making them acquainted, via guided or virtual visits, videos, photos, and so on with the library’s holdings and the services it provided to assist in the class assignments.
- Instruction programs, offered to students, young researchers, and teachers who wish to acquire skills in accessing and using information. By means of personalized courses, whose nature depends on the groups and needs involved, those participating are familiarized with the use tools for information retrieval, such as databases, search engines, search strategies and so on. These activities are designed to advance the student’s capacity to understand the task of self-education and adaptation to the new advances and requirements of the knowledge society and to enable them to resolve their own information needs.

Acknowledging the need for teaching faculties involvement in teaching IL Rothenberg (1997) observed that:

“I need to teach students how to read, to take time with language and idea, to work through arguments, to synthesize disparate sources to come up with original thought. I need to help my students understand how to assess sources to determine their credibility, as well as to trust their own ideas more than snippets of thought that
materialize on a screen."

Wilder (2005) acknowledges that librarians are not successful when they leave their classroom the library and attempt to convey generic IL skills to students only when librarians address individual, subject-based information needs are they are able to assist students in becoming “better writers”.

The librarians on the other hand have argued that bibliographic instruction has always been a part of the academic librarian’s responsibilities. It is in the light of the above submission that Thompson’s (2003:265) position becomes most significant. He observed that “many examples of in institutional techniques that focus on information literacy can be found in library and information literature.”

Librarians have an important role in providing and organizing library created instructional content. Owusu-Ansah (2004) tends to agree with Thompson when he offers solution that places IL responsibilities primarily with academic librarians, beginning with a mandated for credit course focusing on core IL skills and concepts and continuing with constant reinforcement through subject-based library instruction integrated into the curriculum.

Not surprisingly, those writing in the library literature see the librarian’s role in IL as central. Most of these authors position the academic librarian as a full partner in the IL process.

From the author’s experience, it is suggested that the teaching of IL should be shared by both teaching staff and librarians. A few examples will serve to illustrate this point. Snavely and Cooper (1997) hold the view that both librarians and teaching faculty members must work in concert to provide opportunities for students to be exposed to IL-building activities. They even see librarians teaching faculty members how to incorporate IL skills into their courses. Faculty members and librarians can collaborate in many other ways. Ratteray (2004) suggests that more faculty members should now follow the example of librarians and begin to articulate how their own existing pedagogical strategies fulfill the mission of graduating students who are information literate. Furthermore, they stress that the necessity for librarians and faculty to engage in a deeper collaboration in terms of academic program planning and assessment.

Role of Critical Thinking (CT) and Information Literacy (IL) in higher institution
Critical thinking is concerned with the ability to deal reasonably with questions about what to believe. Emphasis here is on skills and tendencies that critical thinkers need. The main reason for the teaching of critical thinking in higher institutions is to improve the thinking skills of students and thus better prepare them to succeed in the academic environment. CL is a powerful tool that students can use to improve the quality of the work they produce regardless of their discipline. It involves thinking with purpose considering assumptions, biases, and conclusions of various viewpoints by using logic and analysis. Students doing class assignment and other research can enrich the content of their papers with an additional layer of depth. As rightly argued by Jones (1996), critically evaluating the intrinsic role of the librarian reveals our responsibility for the education of independent information seekers. Using the model of the expert and apprentice, librarians need to focus on the teaching of critical thinking skills, over and above the more mechanistic skills of evaluation of resources and mastery of search tools. Before we train students to use search tools, before we send them to books, periodicals or websites, we need to teach them about information. What is it? How is it created? Where is it stored? There is no doubt that our students lack critical thinking skills. Swanson (2004) argued that:

"Ideally, the students who enter our college classrooms will have experience managing information. Ideally, the students' previous teachers will have drawn from these diverse standards and give all students a strong foundation upon which college instructors can build."

The fact remains that students have not learnt these skills. The reality is that for a variety of reasons most of our students have had little or no experience with research. Many students feel that the skills they gained in high school properly prepared them for higher education (Hartman, 2001). Critical thinking pushes students toward self-reflection, interpretation, understanding, and ultimately action (Robles, 1996). Furedy and Furedy (1985) do not believe one needs to have expert knowledge in any field to possess "the critical spirit-the proclivity to rational inquiry, suggesting that critical thinking skills are not subject-specific. Their statement also illustrates that in order to know what to question and to understand variable arguments students need
to know where to find the best information and how to evaluate both the contents and the source in order to weigh evidence and deduce, conclusions, thus illustrating the interconnectedness of this approach to critical thinking and information literacy. (Albitz 2007:1)

The purpose of specifically teaching CT is to improve the thinking of students and thus better prepare them to succeed in the world.

**Defining Critical Thinking**

Schafersman (1991) a well known critical researcher notes:

"Critical thinking means correct thinking in the pursuit of relevant and reliable knowledge about the world. Another way to describe it is reasonable, reflective, responsible, and skillful thinking that is focused on deciding what to believe or do. A person who thinks critically can ask appropriate questions, gather relevant information, efficiently and creatively sort through this information, reason logically from this information, and come to reliable and trustworthy conclusions about the world that enable one to live and act successfully in it."

The concept of CT has also permeated strategic thinking in most countries (Critical Thinking Community). A statement by Scriven and Paul (1987) defined CT as the intellectually disciplined process of actively and skillfully conceptualizing, applying, analyzing, synthesizing and or evaluating information gathered from, or generated by, observation, experience, reflection, reasoning, or communication, as a guide to belief and action. In its exemplary form, it is based on universal intellectual values that transcend subject matter division: clarity, accuracy, precision, consistency, relevance, sound evidence, good reasons, depth, breadth, and fairness.

It entails the examination of those structures or elements of thought implicit in all reasoning: purpose, problem, or question-at-issue; assumptions; concepts; empirical grounding; reason leading to conclusions; implications and consequences; objections from alternative viewpoints, and frame of reference;

Increasing attention to CT in recent years is partly as a result of information overload, especially related to the growth of digital information, which has even caused a new ailment called information fatigue syndrome and partly because of the new focus on student learning environment.
Paul (2004) an authority on critical thinking observed that CT recognizes:

- Patterns and provide a way to use those patterns to solve a problem or answer a question.
- Errors in logic, reasoning, or the thought process.
- What is irrelevant or extraneous information.
- Preconception, bias, values and the way that these affect our thinking.
- That these preconceptions and values mean that any inferences are within a certain context.
- Ambiguity— that there may be more than one solution or more than one way to solve a problem.

He further argued that critical thinking implies:

- That there is a reason or purpose to, the thinking, some problem to be solved or question to be answered.
- Analysis, synthesis and evaluation of information.

Critical thinking now seems to be a firmly established concept and educational goal in most western countries. The term appears as a more or less compulsory element in any description of a programme of study. Jones (1996) opined that CT is generally agreed to include the evaluation of the worth, accuracy, or authenticity of various propositions, leading to a supportable decision or direction for action.

As Schafersman (1991) so eloquently argues in his article on the introduction to critical thinking:

_Critical thinking is the ability to think for oneself and reliably and responsibly make those decisions that affect one's life. Critical thinking is also critical inquiry, so such critical thinkers investigate problems, ask questions, and pose new answers that challenge the status quo, discover new information that can be used for good or ill, question authorities and traditional beliefs, challenge received dogmas and doctrines, and often end up possessing power in society greater than their numbers._

Several scholars have discussed the concepts of critical thinking. For example, the critical community (1987) wrote “that critical thinking is that mode of thinking—about any subject, contents, or problem in which the thinker improves the quality of his or her thinking by skillfully taking charge of the structures inherent in thinking and imposing intellectual standards upon them.”

CT can be characterized in terms of knowledge, abilities, attitudes and habitual ways of behaving. Nickerson (1987) has
also been extremely active in the CT with his listing of characteristics of such a thinker. They include:

- Uses evidence skillfully and impartially
- Organizes thoughts and articulates them concisely and coherently
- Distinguishes between logically valid and invalid inferences
-Suspends judgment in the absence of sufficient evidence to support a decision
- Understands the difference between reasoning and rationalizing
-Attempts to anticipate the probable consequences of alternative actions
- Understands the idea of degree of belief
- Sees similarities and analogies that are not superficially apparent.
- Can learn independently and has an abiding interest in doing so
- Applies problem-solving techniques in domains other than those in which learned
- Can strip a verbal argument of irrelevancies and phrase it in its essential terms
- Habitually questions one’s own views and attempts to understand the assumptions that are critical to those views
- Is sensitive to the difference between the validity of a belief and the intensity with which it is held
- Is aware of the fact that one's understanding is always limited, often much more so than would be apparent to one with a non-inquiry attitude and
- Recognizes the fallibility of one's own opinions, the probability of bias in those opinions, and the danger of weighting evidence according to personal preferences.

No doubt because of the rapid increase in the production and dissemination of knowledge, IL and CT have come to be viewed as inextricably interwoven. Comparing the two, Albitz (2007) observed that “in examining the skill sets attributed to information literacy and those attributed to critical thinking, differences are obvious. Again, information literacy appears to be skill-based and more concrete. Information is more tangible, in that one can collect it, analyze it and use it. Critical thinking on the other hand, is a broader, more theoretical approach to learning. Reason, logic and assumptions are abstract concepts. Although they can be defined, they are not usually viewed as skills but higher level cognitive concepts”.

The Concept of Competency in Information Search and Use
The whole essence of the concept is to train users who would use volumes of information now available in the world. Both librarians and faculty members are consciously promoting the use of information through their involvement in IL, CT, user education, library orientation, bibliographic instruction, etc. Many students' lack experience in information handling and in effect not independent learner. But with well grounded library programmes and critical thinking which includes bibliographic instructions, user education, library orientation, they will be encouraged to critically evaluate the information that become accessible.

Promoting information skills should be the librarian's most important task. As predicted by Pinto and Sales (2008), knowing how to look for information, how to evaluate it, and how to use it will certainly be competencies necessary for any graduate who wants to compete in the new knowledge economy.

The importance of information literacy and necessity of IL instruction.

Increasing attention to IL in recent years can be attributed to information overload, especially as related to the growth of digital information and partly because of the new focus on student learning in a lifelong learning context.

UNESCO (2004) identified the importance of IL as follows:
- Enables individuals to find appropriate information for personal and professional problems.
- Enables individuals to handle the uncertain quality and expanding quantity of information.
- Can play a key role in understanding of what constitutes plagiarism.
- Is a prerequisite for participative citizenship, social inclusion, personal vocational, corporate and organizational empowerment and lifelong learning.
- Enables individuals to assume greater control over their own learning and life.
- Is applicable to all disciplines, to all learning environments and to all levels of education.

UNESCO (2008) also highlighted the necessity of IL instruction.
- Without a concerted instructional effort that gives students multiple opportunities to learn and practice IL skills, such skills will not be developed.
- Today, IL is required by accreditation organizations, expected by employers in the workplace for organizational success, and desired by society, which needs an
informed citizenry that is capable of making well-reasoned and well-founded decision, and

- Content mastered by graduation is soon outdated or forgotten by students. Learning can continue beyond formal education by the use of IL skills.

**Conclusion**

The study exposes the relationship between information literacy and critical thinking and how in no small measures both could help our students to realize their optimal potentials. IL gained its popularity as a result of information explosion. CT on the other hand is designed to achieve an understanding of logic, which will lead to their ability to analyze, criticize, and advocate ideas. Both librarians and faculty members should cooperate to achieve this noble goal.

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