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# Information Literacy Skills: A Survey of the Transition of Students from Secondary to University Education in Edo State, Nigeria

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## **Abstract**

This is a survey of the entry-level information literacy skills of first year students. It is a step towards understanding the prior information literacy knowledge of first year students at the University of Benin, and has broader implications for how librarians understand readiness for library research as well as for the future development of information literacy programmes at the secondary school level. Lack of understanding of prior knowledge by university libraries is in itself a barrier to engaging students in the research process in their first year, as it may result in programs that do not inspire students. Methodology adopted is the survey design, and simple randomization was used to select five faculties from the university and 200 new students were randomly selected from the five faculties to make 1000 students. Questionnaire was designed and administered at the point of student's library registration. Result showed that students are not taught information literacy skills from secondary schools and they have little knowledge of information literacy skills. Students understanding of search strategies, especially in the use of Boolean operator was seen to be very poor.

## **Introduction**

Information literacy is a concept that has evolved because of recent efforts to move technology-based instruction and research to a Level above the long-held concepts previously associated with "computer literacy". The focus of information literacy education being the development of students' abilities to construct/collect and analyze information in a way that provides the basis for effective decision-making (Hignite, Margavio, and Margavio, 2009). Studies by Parang, Raine and Stevenson (2000), revealed that information literacy skills are a fusion of library literacy, computer literacy, media literacy, technological literacy, critical thinking, ethics and communication which when acquired would empower individuals to become independent life-long learners. Information literacy has been defined by ACRL (2000), 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". It has also been defined as a self

empowering attitude and commitment by individuals and people, at all levels of society, to seek, access, analyse, translate, transform information and create knowledge to solve problems to achieve personal, social, occupational and learning goals for the improvement of their quality of life (IFLA/ALP 2007).

Research by Bransford (2000), stress that students come to university with "a range of prior knowledge, skills, beliefs and concepts that significantly influence what they notice about the environment and how they organize and interpret it". Whatever depth of knowledge the student must have gathered so far, it is expected that the secondary school attended must have had a significant influence on such student. Basic knowledge in every subject area especially the most encompassing information literacy is expected to be learnt from elementary to secondary school level, after which it will be consolidated at the university level.

Academic librarians need to recognise that building research skills does not necessarily always begin in the first year. Existing skills as reported by Salisbury & Karasmanis (2011), represent a milestone along the lifelong information literacy learning continuum and provide a starting point for building and refining existing skills to suit the university environment. Understanding prior knowledge of incoming students gives knowledge to librarians on how to manage the literacy level of the potentials of the first year students. It opens up possibilities to improve learning activities so that they are more relevant to students' existing skill set and more likely to support students in their trajectories from peripheral to more engaged participation in learning about university research.

### **Review of Related Literature**

Shapiro and Hughes (1996) defined information literacy as "A new liberal art that extends from knowing how to use computers and access information to critical reflection on the nature of information itself, its technical infrastructure and its social, cultural, and philosophical context and impact." Information literacy is becoming a more important part of secondary school education. It is also a vital part of university-level education (Association of College Research Libraries, 2007). Information literacy also is increasingly important in the contemporary environment of rapid technological change and proliferating information resources. Because of the escalating complexity of this environment, individuals are faced with diverse, abundant information choices--in their academic studies, in the workplace, and in their personal lives.

Zurkowski (1974), was first to use the phrase information literacy which appeared in print written on behalf of the National Commission on Libraries and Information Science. Zurkowski used the phrase to describe the "techniques and skills" known by the information literate "for utilizing the wide range of information tools as well as primary sources in molding information solutions to their problems". Subsequently, a number of efforts were made to better define the concept and its relationship to other skills and forms of literacy. Although other educational goals, including traditional literacy, computer literacy, library skills, and critical thinking skills, were related to information literacy and important foundations for its development, information literacy itself was emerging as a distinct skill set and a necessary key to one's social and economic well-being in an increasingly complex information society (Kuhlthau, 1999).

According to ACRL (2000), Information literacy forms the basis for lifelong learning. It is common to all disciplines, to all learning environments, and to all levels of education. It enables learners to master content and extend their investigations, become more self-directed, and assume greater control over their own learning. An information literate individual is able to:

- Determine the extent of information needed
- 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, and access and use information ethically and legally

The rapidly evolving information landscape means that education methods and practices must evolve and adapt accordingly. Computer and information literacy must become a key focus of educational institutions at all levels.

According to Eisenberg, Lowe, & Spitzer, (2004), this requires a commitment to lifelong learning and an ability to seek out and identify innovations that will be needed to keep pace with or outpace changes. Educational methods and practices, within our increasingly information-centric society, must facilitate and enhance a student's ability to harness the power of information. Key to harnessing the power of information is the ability to evaluate information, to ascertain among other things its relevance, authenticity and modernity. Fitzgerald (1999), report that the information evaluation process is crucial life skill and a basis for lifelong learning. Evaluation consists of several component processes including metacognition, goals, personal disposition, cognitive development, deliberation, and decision-making. This is both a difficult and complex challenge and underscores the importance of being able to think critically.

### **Information Literacy and the School Curriculum**

Information literacy should occupy an important role in the school curriculum. Although most schools in the developed countries have considered this skills in their curriculum, but those who are yet to attain a minimal level of information society are still lagging behind. The teaching of Information literacy is so important that the American president (Barack Obama) declared October 2009 as information literacy month. He stresses that educators and institutions of learning must be aware of -- and adjust to -- these new realities. In addition to the basic skills of reading, writing, and arithmetic, it is equally important that our students are given the tools required to take advantage of the information available to them. Obama (2009) added that the ability to seek, find, and decipher information can be applied to countless life decisions, whether financial, medical, educational, or technical. Secondary schools are expected to have Information literacy embedded in their school curriculum in respective of the level of development in the country. Because becoming information literate is an active process, requiring the seeking out of knowledge from multiple sources rather than passively receiving and repeating back facts, the teachers role must evolve from the giver of knowledge into being more of the coach or guide (Winconsin Educational Media Association, 1993). Studies by Humes (2003), advised that in order to produce learners who are information literate, schools will need to integrate Information literacy skills across the curriculum in all subject areas beginning in the earliest grades. Educational reform and restructuring make information literacy skills a necessity as students seek to construct their own knowledge and create their own understandings. Today instruction methods have changed drastically from the mostly one-directional teacher-student model, to a more collaborative approach where the students themselves feel empowered. The American Association of School Librarians that published new standards for student learning in 2007 is now informing much of this challenge.

Within the secondary schools environment, effective curriculum development is vital to the imparting Information Literacy skills to students. Given the already heavy load on students, efforts must be made to avoid curriculum overload Association of College and Research Libraries (2000). Eisenberg strongly recommends adopting a collaborative approach to curriculum development among classroom teachers, librarians, technology teachers, and other educators. Staff must be encouraged to work together to analyze student curriculum needs, develop a broad instruction plan, set information literacy goals, and design specific unit and lesson plans that integrate the information skills and classroom content. These educators can also collaborate on teaching and assessment duties. Presently, many secondary schools have recognised that one way of empowering students is to develop a curriculum framework that would support student-centred learning. Rockman (2004), presents a clear view of what an Information literacy curriculum should entail. It should be problem-based, inquiry-based, and resource-based (that is, it uses a variety of information resources); makes effective use of instructional pedagogies and technologies; and is integrated and articulated with a discipline's learning outcomes. Hepworth (2000), Grafstein (2002) and Lupton (2004) who posit that information literacy is best enhanced when it is integrated into the curriculum of another discipline share this view.

Studies by ACRL (2000), states that gaining skills in information literacy multiplies the opportunities for students' self-directed learning, as they become engaged in using a wide variety of information sources to expand their knowledge, ask informed questions, and sharpen their critical thinking for still further self-directed learning. Achieving competency in information literacy requires an understanding that this cluster of abilities is not extraneous to the curriculum but is woven into the curriculum's content, structure, and sequence. This curricular integration also affords many possibilities for furthering the influence and impact of such student-centered teaching methods as problem-based learning, evidence-based learning, and inquiry learning. Guided by faculty and others in problem-based approaches, students reason about course content at a deeper level than is possible through the

exclusive use of lectures and textbooks. To take fullest advantage of problem-based learning, students must often use thinking skills requiring them to become skilled users of information sources in many locations and formats, thereby increasing their responsibility for their own learning.

Generally, arguments may be made for Information literacy courses that are either stand-alone or integrated with other courses. Stand-alone courses can meet the needs of the student who recognises the importance of being information-literate. Parker (2005), reports that it is also practical-oriented and less costly. However, stand-alone courses according to Dadzie (2009) may not motivate students, as they have no relevance to their assignments or research skills. On the other hand, a number of authors share in the opinion that the ideal method for enabling students to develop their information literacy skills is by embedding the information literacy activity into the student's course materials. This method allows information literacy to be delivered in the context of the subject students are studying, as well as consolidating the partnership between school librarians and teachers in providing Information literacy training.

### **Librarians' and Students; Information Literacy Skills**

Academic librarians are able to identify skill gaps based on their experience of working closely with first year students. Areas readily identified include understanding scholarly information types and finding journal articles (Bernath & Jenkin, 2006 and Hartmann 2001), developing sophisticated search strategies, and evaluating and critically thinking about information retrieved (Crawford & Irving, 2007).

However, Guise, et al. (2007), reviewed entry-level students' research skills and concluded that they were unprepared to meet the needs of first year research requirements. Likewise, Russell (2009) identifies significant gaps in "information competencies that students demonstrate during high school to university transition". For example, they lack an understanding of what constitutes quality scholarly information; they have difficulty evaluating information retrieved, and when faced with an array of interfaces and search methods, they favour more intuitive and familiar methods like Google. Rowlands (2009) also identified Google as ingrained "coping behaviour" for university students that are preferred, because it is familiar and simplistic, and makes up for a poor understanding of how to develop sophisticated searching strategies.

### **Statement of the Problem**

The level of Information literacy through library literacy, computer literacy, media literacy, technological literacy, critical thinking, ethics and communication has been a bane towards the fulfillment of students information needs in the early stages of their university education. As a result, students barely show the knowledge transition from the secondary school attended towards the usage of the library and its technological facilities like the computers and other guides towards proper utilization of the entire library system. This research is a survey of the entry-level information literacy skills of first year University of Benin students. It is a step towards understanding the prior information literacy knowledge of first year students at University.

### **Methodology**

The John Harris Library, University of Benin, organizes library orientation programme for first year students as well as lecturing a course titled "use of library", which is synonymous to information literacy programme. Students in all faculties enroll this course which is a prerequisite for final graduation.

The survey was conducted in the first week of first semester 2011, across five major faculties; viz: Agriculture, Management Sciences, Basic Medicine, Engineering and Physical Sciences. To maximise the response rate, data were collected during student's registration with the library. With a random sampling method, 200 students were selected each from the five faculties making a total of 1000 students. While questionnaire was used for data collection, it was administered randomly to student after their registration exercise for about two weeks. This enables a 100% response rate from students. Data were analysed using SPSS by an external consultant.

**Table 1: Gender Distribution of Students**

| <b>Gender</b> | <b>Frequency</b> | <b>Percentage</b> |
|---------------|------------------|-------------------|
| Male          | 518              | 51.8              |

|              |             |            |
|--------------|-------------|------------|
| Female       | 482         | 48.2       |
| <b>Total</b> | <b>1000</b> | <b>100</b> |

From Table 1, 51.8% of the students are male which shows a less significant difference with the female (48.2%) counterpart.

**Table 2: Distribution of Students According to Faculties**

| Faculties           | Frequency   | Percentage |
|---------------------|-------------|------------|
| Agriculture         | 200         | 20.0       |
| Management Sciences | 200         | 20.0       |
| Basic Medicine      | 200         | 20.0       |
| Engineering         | 200         | 20.0       |
| Physical Sciences   | 200         | 20.0       |
| <b>Total</b>        | <b>1000</b> | <b>100</b> |

## Results and Discussion

**Table 3: Learning Information Literacy from Secondary Schools Attended**

| Questions  | Yes<br>(2)     | No<br>(1)      | Mean | Std. Deviation |
|--|----------------|----------------|------|----------------|
| Teachers encourage the use of Library and Internet for information retrieval | 748<br>(74.8%) | 252<br>(25.2%) | 1.75 | .44            |
| School teaches how to get information from Libraries and Internet            | 466<br>(46.6%) | 534<br>(53.4%) | 1.46 | .50            |
| <b>Weighted Average</b>  | <b>=</b>       | <b>1.61</b>    |      |                |

From table 3, majority (74.8%) of the students claimed that their teachers encourage the use of Library and Internet for information retrieval, while 53.4% indicated that their school does not teach how to get information from libraries and the Internet.

Above all, the weighted average of 1.61 out of 2.00 shows that the learning of information literacy skills in their respective secondary schools is fairly good.

**Table 4:** In order to become familiar with a subject about which I know very little, first I consult: Please number in order of importance 1 = most important ... 8 = least important:

| Materials        | Most important | Percentage |
|------------------|----------------|------------|
| A journal        | 28             | 2.8        |
| Ask a friend     | 225            | 22.5       |
| An encyclopaedia | 38             | 3.8        |
| A blog           | 14             | 1.4        |
| A database       | 27             | 2.7        |
| Google           | 456            | 45.6       |
| A book           | 169            | 16.9       |
| Wikipedia        | 43             | 4.3        |
| <b>Total</b>     | <b>1000</b>    | <b>100</b> |

Table 4 show that the most important material a respondent consult in order to be familiar with a subject is Google (456 or 46.6%), and this is followed by Ask a friend (22.5%).

**Table 5: Perceived Capacity of Information Literacy Skills (SA=Strongly Agree, A=Agree, D=Disagree, SD=Strongly Disagree)**

| STATEMENT   | SA<br>(4)% | A<br>(3)%     | D<br>(2)%     | SD<br>(1)%    | Mean | S.D |
|---|------------|---------------|---------------|---------------|------|-----|
| I could access any library materials with some level of support | 4 (.4)     | 418<br>(41.8) | 367<br>(36.7) | 211<br>(21.1) | 2.22 | .77 |

|  |             |               |               |               |      |     |
|--|-------------|---------------|---------------|---------------|------|-----|
| I know how to/use the Internet for educational purpose   | 1 (.1)      | 651<br>(65.1) | 279<br>(27.9) | 69<br>(6.9)   | 2.58 | .62 |
| We were taught on how to recognize when information is needed and have the ability to locate, evaluate, and use effectively the needed information | 12<br>(1.2) | 113<br>(11.3) | 212<br>(21.2) | 663<br>(66.3) | 1.47 | .74 |
| I had access to internet computer facilities in my secondary school  | 6 (.6)      | 336<br>(33.6) | 437<br>(43.7) | 221<br>(22.1) | 2.15 | .96 |
| I can use any of the search engines (google, lycos, mamma and alta vista) to get any kind of information I want                                    | 3 (.3)      | 308<br>(30.8) | 372<br>(37.2) | 317<br>(31.7) | 2.00 | .80 |
| I have the ability to seek, find, and decipher information   | 3 (.3)      | 177<br>(17.7) | 319<br>(31.9) | 501<br>(50.1) | 1.68 | .77 |
| Frequently access internet to meet my information needs  | 2 (.2)      | 432<br>(43.2) | 417<br>(41.7) | 149<br>(14.9) | 2.29 | .71 |
| What I learnt in my secondary school is enough to help me utilize the library.   | 1 (.1)      | 640<br>(64.0) | 290<br>(29.0) | 69<br>(6.9)   | 2.57 | .62 |
| I know how to retrieve books/journal from my university library  | 1 (.1)      | 304<br>(30.4) | 406<br>(40.6) | 289<br>(28.9) | 2.02 | .77 |
| We have information literacy programme embedded in our secondary school curriculum   | 4 (.4)      | 61<br>(6.1)   | 72<br>(7.2)   | 863<br>(86.3) | 1.21 | .56 |
| <b>Weighted Average</b>  | =           | <b>2.00</b>   |               |               |      |     |

Table 5, shows that students could not access any library materials without some level of support (Mean = 2.22; SD = .77), were not taught on how to recognize when information is needed and have the ability to locate, evaluate, and use effectively the needed information (Mean = 1.47; SD= .74), had no access to internet computer facilities in my secondary school (Mean = 2.15; SD= .96). While, majority of the students claimed that they know how to/use the Internet for educational purpose (Mean = 2.58; SD= .62).

However, overall responses, the weighted average of 2.00 out of 4.00, shows that there is a low capacity of information literacy skills on the new students.

**Table 6:** You have used the words 'business letters' in a library catalogue search. No items are found by the computer/card catalogue. What do you conclude?

| Conclusions                                       | Response    | Percentage |
|---|-------------|------------|
| The Library does not have any items on this topic | 390         | 39.0       |
| I have not used the right words                   | 210         | 21.0       |
| All items on this topic are already on loan       | 232         | 23.2       |
| The system is down                                | 148         | 14.8       |
| Don't know  | 10          | 3.0        |
| <b>Total</b>                                      | <b>1000</b> | <b>100</b> |

Table 6 revealed that the most of the respondents with 39% concluded that the Library does not have any items on this topic, while few others believed that the OPAC system is down.

Therefore, it can be concluded that most of the respondents do not know how to search the library computer/card catalogue with subject terms as they may have not used the right words for search.

## Findings

The following findings were revealed from the analysis:

- that the students have fairly learnt information literacy skills in their respective secondary schools before getting University admission
- that the most important material a respondent consult in order to be familiar with a subject is Google

- that new students have a low capacity of information literacy skills
- most of the students do not know how to search the library computer/card catalogue with subject terms with little modification

## Conclusion

While recent studies (Ellis & Salisbury, 2004), conclude that students commence university with limited information seeking skills, the results of this study provide the evidence to accept that students do not bring skills to university that are commensurate with their current level of educational attainment. The findings demonstrate that entry-level students have some little skills which are not enough for independent research work or library usage. The strong preference for Google is not surprising and reflects other studies that demonstrate that the majority of students use search engines to begin an information search and are very satisfied with their overall experience of this searching method (OCLC, 2006). Students understanding of search strategies, especially in the use of Boolean operator was seen to be very poor. The use of Boolean operator AND limits a search to results which include all the search terms. These results indicate that will find it difficult to access library resources since they do not comprehensively understand the proper use of Boolean operator.

Lack of understanding of prior knowledge by university libraries is in itself a barrier to engaging students in the research process in their first year, as it may result in programs that do not inspire students, or do not give relevant feedback or encouragement to build on what students already know. The course; “use of library” (General Studies) can help provide a detailed understanding of information literacy skills. Helping students to build on their existing information literacy skills when they start university, means they can begin to "develop the intellectual tools and learning strategies to acquire the knowledge that allows people to think productively in the use of any information repository. It is highly recommended that secondary schools should include information literacy programmes in their school curriculum, while assigning the students with the responsibility of putting the school libraries into optima use.

## References

- Bernath, V & J. Jenkin. (2006). Evaluation in curriculum design: An Australian example using a Canadian questionnaire, <http://www.lib.monash.edu.au/reports/infolitevaluation-2005>
- Bransford, J. (2000). *How people learn: Brain, mind, experience, and school*. Washington, D.C.: National Academy Press.
- Crawford, J., & Irving, C. (2007). Information literacy: the link between secondary and tertiary education project and its wider implications. *Journal of Librarianship and Information Science* 39(17): 17-26.
- Dadzie, P.S. (2009). Information literacy in higher education: overview of initiatives at two Ghanaian universities. *African Journal of Library, Archives and Information Science* 19(2)
- Eisenberg, B. M., Lowe, C., & Spitzer, K. (2004). *Information literacy: Essential skills for the information age*. 2<sup>nd</sup> ed. Libraries Unlimited.
- Ellis, J., & F. Salisbury. (2004). Information literacy milestones: Building upon the prior knowledge of first-year students. *The Australian Library Journal* 53(4): 383-396.
- Fitzgerald, M. A. (1999). Evaluating information: An information literacy challenge. *School Library Media Research* (2).
- Grafstein, A. (2002). A discipline-based approach to information literacy. *Journal of Academic Librarianship* 28 (4), 197-204

- Guise, J. L., J. Goosney, S. Gordon & H. Pretty. (2007). Evolution of a summer research/writing workshop for first-year university students. *New Library World* 109(5/6): 235-250.
- Hartmann, E. (2001). Understandings of information literacy: the perceptions of first year undergraduate students at the University of Ballarat. *Australian Academic and Research Libraries* 32(2): 1 10-122.
- Hufford, J. R. (2010). What are they learning? Pre- and post-assessment surveys for LIBR 1100, introduction to library research. *College and Research Libraries*. 71(2): 139-158.
- Hepworth, M. (2000). Approaches to providing information literacy training in higher education: Challenges for librarians. *The New Review of Academic Librarianship*, 6, 21-34.
- Hignite, M., Margavio, M.T., & Margavio, G.W. (2009). Information literacy assessment: Moving beyond computer literacy. *College Student Journal* 43 (3). Pp.812-821
- Humes, B. (2003). Understanding information literacy: Library reference search. National Institute on Postsecondary Education, Libraries and Lifelong Learning. Washington D.C. ED430577 P.7
- IFLA/ALP, (2007). The IFLA-ALP Information Literacy and IT workshop Held at Victoria University of Wellington, New Zealand 12 November - 7 December 2007  
[http://archive.ifla.org/VI/1/conf/Literacy\\_IT\\_2007/index.html](http://archive.ifla.org/VI/1/conf/Literacy_IT_2007/index.html)
- Kuhlthau, C. (1999). Literacy and Learning for the information Age. In Stripling, B. (Ed.) *Learning and libraries in an information age: principles and practice*. Littleton: Libraries Unlimited.
- Malliari, A., & Nitsos, I. (2008). Contribution of an information literacy programme to the education process: The case of a Greek academic library. *Library Management* Vol.29 Issue 8/9. Pp.700-710
- Obama, B. (2009). Presidential Proclamation: National Information Literacy Awareness Month, 2009. Washington, DC: U.S. Government Printing Office. Retrieved from  
[http://www.whitehouse.gov/assets/documents/2009literacy\\_prc\\_rel.pdf](http://www.whitehouse.gov/assets/documents/2009literacy_prc_rel.pdf)
- Parang, E, Raine, M., & Stevenson, T. (2000). Redesigning freshman seminar library instruction based on information competencies. *Research Strategies*, 17(4), 269-280
- Parker, J. (2005). Is a standalone IL course useful? *Library Information Update*, 4 (1-2) 34-35.
- Rockman, I. F. (2004). Introduction: The Importance of information literacy. *Integrating information literacy into the higher education curriculum: Practical models for transformation*. (Jossey-Bass Higher and Adult Education Series). San Francisco: Jossey-Bass.
- Salisbury, Fiona & Karasmanis, Sharon (2011). Are they ready? Exploring student information literacy skills in the transition from secondary to tertiary education. *Australian Academic & Research Libraries*
- Shapiro, J., & Hughes, S (1996). Information Literacy as a Liberal Art: Enlightenment proposals for a new curriculum. *Educom-Review* (<http://www.educause.edu/pub/er/review/reviewarticles/31231.html>).
- Wilson, L.A. (2004). What a difference a decade makes: Transformation in academic library instruction. *Reference Services Review*, 32 (4) 338-46.
- Wisconsin Educational Media Association. (1993). Information Literacy: A Position Paper on Information Problem Solving. Madison, WI. ED 376817.
- Zurkowski, P.G. (1974). *The information service environment: Relationships and priorities*. National Commission on Libraries and Information Science. ED100391.

