FROM USER EDUCATION TO INFORMATION LITERACY: THE KWAME NKRUMAH UNIVERSITY OF SCIENCE TECHNOLOGY LIBRARY'S EXPERIENCE

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Abstract
The user education programmes of the Kwame Nkrumah University of Science and Technology (KNUST) Library since the inception of the Library in 1961 were reviewed. Personal observation of the current user education programme was also made between 2007 and 2009. The study focused mainly on students both at undergraduate and postgraduate levels. It was observed that the user education programmes had gone through metamorphoses – from guided tours through video instruction and currently Information Literacy Skills programme (ILS), which is in the process of being implemented. The basic problem that has bedeviled all the user education programmes was found to be escalating student enrolment which renders the programmes ineffective. The study recommended among others: Sensitization of users, expansion of ICT infrastructure and e-services, and finally providing capacity at the college level to deal directly with students and faculty members to ensure that the ILS programme does not suffer from increased student enrolment.

Introduction

The library is an integral part of academic activities on the university campus. It is a hub of learning, teaching and research for students, faculty and researchers. Library materials include books (monographs), periodicals, audiovisuals and other electronic resources.

Tiamiyu and Salako (2008) observed that until the development of electronic means of data storage, tools for accessing information were generally in the form of ordered lists, such as sheaf or card catalogue, printed indexes, etc. The development of access mechanisms have become more complex which necessitates an in-depth knowledge of database structures and computer programming, as well as an understanding of how such systems would be used.

The need for user education, therefore, cannot be overemphasized. User education, however, comes with challenges. Some of these challenges are descriptive, organizational, educational and attitudinal. User education programmes in the Kwame Nkrumah University of Science and Technology (KNUST) Library have taken different forms over the years depending on the population of students. It has gone through guided tours of the Library, presentation of video documentary on the use of the Library and currently an Information Literacy Skills programme is imminent. All these are geared towards enhancing accessibility and use of library materials to support teaching, learning, research and knowledge dissemination. This study focuses on some of the challenges that inhibit user education at the KNUST Library, which is located in Kumasi, Ghana.

Problem Statement

The KNUST Library like any academic library provides resources to the university community in support of teaching, learning and research. The Library has a responsibility to offer educational programmes that will help maximize the use of these resources. The user education programmes offered by the Library are subject to periodic reviews by the library administration. This is to examine how effective a particular programme is and to determine whether to continue, modify or change completely. Since its inception in 1951, the KNUST Library

has made use of two main forms of user education programmes - guided tours and video instruction respectively. Both programmes have proved ineffective in the face of increasing student enrolment. Since 2008 serious efforts have been made to introduce Information Literacy Skills (ILS) course in the university curriculum as an attempt to solve the problem with user education. Whether the ILS, when introduced will be a panacea to the user-education problem or not, remains a research question to be answered.

Objective of the Study

This study assesses the current state of user education in KNUST Library with reference to

i.   Content;

ii.   Duration;

iii. Methodology; and

iv.   Challenges.

It also makes a recommendation for the proposed introduction of ILS to prepare students to make optimal use of the KNUST Library resources.

Literature Review

Broadly defined, library user education teaches how to make the most effective use of the library system. It encompasses all activities undertaken to help users become efficient users of information. These are mostly how to identify an information need and find it; evaluate and select the best information to meet that need (Tiefel, 1995).

Carson and Miller (1984) give a working definition of what constitutes integrated user education. According to them user education within the context of the library consists of three essential elements. Firstly, the user education should take place as part of subject specific classes. This would include an assignment involving use of information sources in the library. Secondly, because it is part of subject classes, librarians and teaching staff must work very closely together to ensure the quality and focus of the class. Thirdly, the main dose of instruction should be given in lectures, although this does not preclude the student from seeking further help in the library.

Activities to achieve these, according to them, mostly include orientation sessions, workshops, guides and course-related/interacted instructions.

Rathore (1992) summarizes user education into three levels namely:

i.   The library orientation is to be given at the beginning of every academic year or semester ... it should be applicable to all those who are using the library for the first time;
ii. The second level, i.e. subject oriented instruction for undergraduates at a stage when they are admitted to a special branch or subject of their choice or at the time of project work; and
iii. Literature search training ... should be provided at the beginning of their research work.

Boyer (1987) sees user education as playing a vital role in university education and recommends that students and for that matter library users, must be introduced carefully to the full range of resources for learning on campus. Students, he adds, should be given bibliographic instruction and be encouraged to spend at least as much time in the library--using its wide range of resources— as they spend in classes.

In discussing the objectives for a library user education, Tucker (1979) contends that these were established as early as 1881 when Otis Hall Robinson called for clarification of instructional goals at the American Library Association conference. He wanted purposeful instruction. As relevant today as they were a hundred years ago, three important objectives were cited:

i.   Students need to "develop the art of discrimination" to be able to judge the value of books to develop critical judgment;
ii. Students need to become independent learners; and
iii. Students need to continue to read and study.

From these objectives has recently come the idea of information literacy skills (ILS).

ILS is defined by the American Library Association (1989) as the ability to recognize an information need and having the requisite knowledge to locate, evaluate, and use effectively the information.

Tiefel (1995) observes that "dramatic changes in technology and society are having a considerable impact on libraries and their instruction programmes. These changes have created an urgency to teach users how to become more effective, efficient, and independent in their information searching. In response to this, the goals of library user education have expanded from teaching tools to teaching concepts and from library instruction to information literacy and lifelong learning". Candy (1993) however, cautions that information literacy is not just a response to the demands of the information society, but more importantly as a set of intellectual accomplishments that can aid the realization of the life-long society.

The Association of College and Research Libraries (1989) considers ILS as a survival skill in the information age in that it enables one not to drown in this era of abundance of knowledge and that the information literate uses the skill effectively to explore and exploit information sources to his/her advantage to solve problems. Eisenberg and Berkowitz (1988) identify six components of ILS, which are termed The Big 6. These are: - identifying the information need, locating sources, selecting/analyzing, organizing and synthesizing, creating/presenting, and evaluating. The Big 6 concept is now used worldwide.

ILS is also seen as life-long education. This is emphasized by Cropley (1977) when he states the conviction that all individuals ought to have organized and systematic opportunities for instruction, study and learning at any time throughout their lives. In support of this assertion, Wooliscroft (1997) adds that once the skill is acquired, it assists the individual to learn and re-learn, to train and re-train. To him the ability to continue learning throughout one's life is a key survival tool in the world of change. Similarly, Candy (1993) further adds that "the idea that access to and critical use of information and of information technology is absolutely vital to lifelong learning and accordingly no graduate can be judged educated unless he or she is information literate".

The question of what should constitute the content and approach to imparting ILS is a critical issue that has been extensively examined. Oberman and Strauch (1982) suggest a shift from purely technical to a contextual approach and the development of a conceptual framework of principles. Kumar and Kumar (1983) stress the need to supplement practice and techniques with theory and methodology. In Irving's (1985) opinion, whatever the approach or content is, it

must be ensured that certain basic skills are acquired by the learner. The range of skills include writing, searching, retrieving, organizing, processing, thinking, analyzing and presenting.

In examining the issue of what role libraries and librarians are to play in making ILS a success, Wooliscroft (1997) draws attention to the fact that, factors such as the introduction of technology into teaching, changes in scholarly communication patterns, the increasing variety of media, more demanding students requiring services to be available, require that librarians re-define their roles in the management of information and knowledge resources. ILS is seen as one of the concepts designed to meet the challenges of the new roles that have come up with Bruce's (1996) call on librarians to collaborate with lecturers (discipline experts), computer scientists, media specialists, and possibly community stakeholders. Her reason is that "it is the cumulative experience from a range of subjects and learning experiences that create the information literate person". She proceeds to offer a list of strategies for organizing an ILS programme within the university context. Townley and Myers (1985) believe that for librarians to succeed as teachers of ILS, library administration will have to play an active role in modifying professional roles". This, they argue, will create the enabling environment for librarians to address scholarly information effectively. Farmer (1992) proposes that librarians should have an attitudinal change by seeing themselves not merely as disseminators of information but also being "facilitators who empower students to become autonomous learners through resource-based learning outside of the classroom".

In her seminar paper to the Ghana Library Association on 'The Critical Role of Libraries in the Information Society', Bannerman (2007) intimates that library users must be information literate to be able to make effective use of the vast range of information. She continues that this skill will enable them to adapt to the rapidly changing environment as their ability to use information has become crucial in today's society and will continue to become more so.

Sam (2007) identifies that increasing fresh student admission in the University of Ghana, Legon has put enormous strain on the library staff who undertake the user education exercise. According to him the drudgery of walking to all floors and sections of the library so many times as part of the traditional walk-around tours is too much for the weary legs of the staff involved.

Methodology
The study utilized the results of the researchers' personal observation and involvement in the work of the six departments of KNUST Library over a period of two years (2007 to 2009). The departments are Acquisitions, Cataloguing, Lending, Reference, Serials and Electronic Information respectively.

Documentary sources and other recorded information like reports, user guides, video clips, slides, worksheets and available literature were also used to gather information for the study.

The study focused mainly on students at both undergraduate and postgraduate levels. This is because they form the core of the library's clientele.

Resources of KNUST Library
Located at the centre of Kwame Nkrumah University of Science and Technology, Kumasi-Ghana, the main KNUST Library together with six other College Libraries constitute the University Library System. The six colleges are Engineering, Science, Agriculture and Natural Resources, Architecture and Planning, Art and Social Sciences, and Health Sciences.

The main University Library holds a collection comprising 290,000 volumes of printed books and 3,840 journal titles. Of the journals 340 are current issues. By virtue of its membership of the Consortium of Research and Academic Libraries in Ghana (CARLIGH), the Library has paid access to over 15,000 online journals in databases, CD-ROMs, in specific subject areas and access to about 9,000 free online journals.

The role of the librarian encompasses assistance or instruction in the timely use of the library's resources - print and electronic, hence the need for vigorous user education which will enable the users to optimally use the resources.

History of User Education at KNUST Library
The Library came into being with the establishment of KNUST in 1951. Until the 2006/2007 academic year user education took the form of guided library tours. At the beginning of each academic year organized fresh students of KNUST were given an aspect of user education in the form of orientation. This was done for students in groups of twenty or thirty. Instruction was usually in the use of catalogues (card and electronic), indexes and other useful guides that

could help users to access materials in the Library and elsewhere with ease (Ahenkorah-Marfo, 2005). A library guide containing a summary of the user education programme was given to each student upon registration with the Library.

Over time, however, the Library guided tour was found to be ineffective and gave way to video presentation of instructions in the 2006/07 academic year. In the course of the video presentation the University Librarian and heads of the various departments introduced students to the vast resources in the KNUST Library and demonstrated how to access them. It allowed users to ask questions after the presentation. This facility which replaced the guided tour has also in recent times been found to be equally ineffective.

Challenges of Accessing Library Resources
The ability to find information is essential for success particularly in school and generally in life. Naturally, users who do not have the basic knowledge to understand the technical nature involved in arriving at call numbers and the filing system may have difficulties in accessing library materials. The solution lies in an effective user education. Unfortunately the two user education methods used over the years since the establishment of the KNUST Library - guided tour and video instruction - have failed to yield the desired impact.

Problems with Guided Tour/Orientation
Problems with the guided tour caught up with the Library when student enrolment started increasing astronomically. In the late nineties for instance, the number of freshers admitted into KNUST in an academic year was in the neighbourhood of four thousand. This is far less than the over nine thousand students admitted in the year 2008 by KNUST. Groups of 20-25, which were then ideal for guided tours, were increased to groups of fifty. What this meant was that student/librarian interaction was less effective and students grasped virtually nothing during the orientation. Thus in the course of the year users found problems with identifying call numbers, distinguishing between call numbers and accession numbers, making use of the subject and author indexes and subsequently locating library materials. The ineffectiveness of the exercise is made manifest by the about 50 students who contact staff per day for assistance in search for information in and outside the Library.

All these problems gave way to a change in policy on user-education by the Library administration in 2006/2007. Video instruction which aimed at putting all freshers in a hall replaced the group library tour. The video presentation is done twice at the beginning of each academic year. This is to make sure that all freshers are captured. However, like its predecessor, it has already shown signs of ineffectiveness.

Challenges of Video Instruction
Instructions on all activities of the KNUST Library system are shown in a video presentation twice at the beginning of every academic year. This forms part of the general university orientation for freshers including postgraduate students. Students in a hall are grouped according to their colleges and the Library is allotted a limited time of one hour for its video presentation for each session. Instructions in how to access resources (print and electronic) are prominently shown in this video lesson. By this, over 2000 students are captured in each of the two sessions. Students are given instruction in identifying library materials and finally accessing and making good use of the materials in good time.

The challenges of the video instructions have to do with the same large student numbers. Because of the large numbers coupled with limited time, most freshers are not able to get their questions answered or clarified.

Again there are many others who for fear of the crowd recoil into their shells and leave more confused than they were before the instruction. Many students do not turn up for the video instruction because there is no monitoring system to find them out. Even if they can be found out they cannot be punished for not attending.

In order to equip students with life-long requisite skills to access information, plans are afoot by the Library administration to replace the video instruction with a credit earning information literacy course in the curriculum of the university at levels 100, 300 and 500.

This course is intended to equip first year undergraduate and postgraduate students with the necessary IL skills from the beginning of their programme. At level 300 the ILS is also intended to ensure that the third year continuing students are adequately equipped to carry out good research for their fourth year project work.

Information Literacy Skills in KNUST
As the Library user population (refer to Table 1) increased over time with its corresponding increase in the demand for information, pressure was brought to bear on the Library administration in the provision of services to clients.

Table 1: Statistics on Students' Enrolment in KNUST- 1999/2000-2008/2009

YEAR	ENROLMENT
1999 /2000	4031
2000/2001	4371
2001/2002	4988
20002/2003	4936
2003/2004	5526
2004/2005	7764
2005/2006	9675
2006/2007	9145
2007/2008	8421
2008/2009	9298

Source: - KNUST Planning Unit (Basic Statistics June, 2009)

This increasing user population either delay information services or affect the quality of delivery. It also became increasingly evident that the current systems of user education and video instruction could not be a panacea to ensuring improved information access. Taking a cue from best practices across the world, the concept of information literacy skills (ILS) training was mooted by the University Librarian in 2008/2009. The intended ILS programme is to equip library users with the skills to identify, access, evaluate and use information effectively and efficiently.

The effort to give information access a new face at KNUST dates back to 2005 when in drawing up the University Library's Strategic Plan, it was stated as one of its objectives to "expand ICT infrastructure and to strengthen the user education programme for effective exploitation of the library's resources" (KNUST Library, 2005). To give meaning to this objective, the KNUST Library, in 2007, signed a memorandum of understanding (MoU) with the Royal Tropical Institute (KIT) of the Netherlands for the latter to assist the former to build the requisite capacity of library staff by way of training and

meetings in order to achieve this objective. The table below (Table 2) summarizes the series of workshops held for library staff and users in this regard.

Table 2: Summary of Meetings and Workshops on ILS

DATE	WORKSHOP	AIM	PARTICIPANTS	NO OF PARTICIPANTS	VENUE
15-17 Jan, 2008	Training in Advanced Internet Search	To equip participants with searching skills	Post graduate students and Library Staff	42	KNUST ICT Centre
12-26 Sept, 2008	Planning workshop on ILS	To develop an implementation plan for providing library user education plan for students and lecturers	Library staff	2	KIT, Amsterdam
2 -6 Feb, 2009	Curricula development for ILS syllabus	To develop a draft ILS syllabus for five categories course levels for various class of students.	College librarians and Heads of Dept in the Main Library	12	KNUST Electronic Information Dept
20-22, May 2009	Training of Trainers	ILS sensitization	Selected faculty members and library staff	45	KNUST ICT Centre

Source: KNUST Library, 2009.

The ILS workshop of February, 2009 was part of a series of activities aimed at strengthening IL at KNUST. The first activity was Training in Advanced Internet Searching (TAIS) organized in the KNUST ICT Centre by two facilitators from KIT in January 2008. This was followed by a two- week planning workshop on IL organized in September 2008 at KIT headquarters, Amsterdam. The third activity was a workshop that developed the syllabus for the ILS curriculum. In June, 2009 a final workshop consisting of a three-day training of 42 faculty members selected in collaboration with six College

Provosts of KNUST was organized. This workshop was conducted by two KIT trainers with the assistance of six senior members of KNUST Library.

These activities were organized by the University Library with the view to building capacity of staff to implement the ILS programme effectively and efficiently. Another objective was to sensitize faculty and students to embrace the ILS programme when it eventually takes off.

The University Librarian and members of the professional staff of the KNUST Library were actively involved in the preparation to introduce ILS in the university's curriculum. This is so because they are the category of staff qualified to teach the course. The series of workshops and meetings eventually culminated in the drawing up of the syllabus.

The syllabus was structured to handle the following areas –

ILS 151 – Introduction to Information Literacy
Concept of information literacy, information retrieval, types of libraries and their relationship to university education, reference information tools, introduction to library catalogue, databases, introduction to searching for information on the Internet, evaluation of sources and legal and ethical issues of information

ILS 352/ILS 551 – Advanced Information Literacy
Searching databases, research strategies/questions, evaluation of databases, advanced Internet searching, evaluation of sources, uses of databases, copyright, plagiarism and citation.

The main considerations informing the development of the syllabus were the following:
- challenges students encounter in accessing information;

- course content relevant to equip students adequately to access the information they need;

- whether the course should be run as a taught, practical or both;

- whether the intended ILS programme be run as an integrated one with Communication Skills, Computer Skills or should be taught as a stand-alone course;

- at what level or stage should the course be taken - undergraduate or postgraduate;.

- the credit hours to be assigned to the course;

- the availability of qualified staff to handle the course; and

- availability of facilities to run the course.

Most of the issues raised above were addressed in a proposal submitted by the University Library to the University Planning Committee and eventually the Academic Board for approval to introduce the ILS programme into the university curriculum. A sub-committee, involving the University Librarian and some faculty members was formed to study the proposal. Recommendations were made to offer the course only at the undergraduate level 100 and that the course should be handled at the college level. Another recommendation was that a list of professional staff members in the library who qualify to teach was to be submitted as part of the proposal. The proposal was revised as recommended and it is pending consideration and final approval of the Academic Board. When approved the ILS will be a required two-hour credit course.

The Library has nineteen senior staff members, seventeen of whom have master's degrees in Library and Information Studies and three of them with postgraduate professional qualification in Librarianship. They are capable and prepared to teach the ILS when introduced.

Conclusion
It was revealed that the two main forms of user education at KNUST Library, guided tour and video instruction, have both proved ineffective in the face of soaring student enrolment. The good news is that a new form of user education, a credit earning ILS programme that seeks to be more appropriate in the electronic environment, will be part of the university curriculum upon approval by the Academic Board.

In a bid to ensure that this third attempt in search of a lasting solution for user education and subsequent improvement in user accessibility does not suffer a similar fate, some recommendations have been proposed. It is believed that adherence to these recommendations will not only enhance user accessibility but also prepare students for life-long learning.

Recommendations

Sensitization
The KNUST Library, over the years, had embarked on three kinds of programmes and exercises to whip up awareness and to engender interest in the resources and facilities available to users. The result had not been as encouraging as expected. This goes to confirm that much work needs to be done by intensifying the existing sensitization programmes as well as exploring other alternatives. For example, one means which is likely to provide a potential medium to reach out to potential users is the University's Fm radio station. Observation at the Electronic Information Department of KNUST Library indicates that awareness of the Library's e-resources in particular has been informally done by students and lecturers who pass on information to their mates and colleagues respectively. In the same vein lecturers who serve as supervisors of students' project work and are aware of the resources refer their students to the Library to access relevant information. Every conceivable opportunity must not be spared to publicize the availability of library resources even if it involves only one person, who can also potentially reach out to many other colleagues.

Intensified/ Strategic User Education
Besides training workshops and seminars, online tutorials (in both audio-visual and text formats) should be developed and posted at the University Library website so as to reach out to as many users as possible. This is important because there are a number of lecturers and students who by virtue of their schedule would not be physically available to participate in workshops and seminars. Access to these online training manuals will afford this category of users the opportunity to acquire the requisite skill training to access library resources without necessarily having to attend a workshop. The training manuals should be appropriate, simple and systematic to lend itself for self-tuition.

Expanding ICT Infrastructure Base
Access to library materials can be expanded if the current ICT infrastructural base in the Library is expanded or improved. There is no point in providing capacity through user-education when the means to access information is not available. Currently at the KNUST, the computer-student ratio is 1: 120. This is grossly inadequate. Most students though have their own computers, yet there is limited Internet access. Automation of the Library services must be accompanied by increased computers, improved bandwidth and reliable power supply.

Automation and E-services
Expanding access would automatically generate increased use of library resources. One of the ways of meeting increased demand is automating library services as a supplement to the existing manual system. By so doing library services such as referencing, acquisition, cataloguing, circulation, generation of user records etc would have to be automated. While e-services at the Cataloguing department has been partially in place since 1994 and is currently almost complete, the fully automated system will become operational in a few months.

Supporting Local Repository
Institutional repositories have always played a major role in the dissemination of and access to institutional resources, yet the current situation in the KNUST Library needs to be revitalized by broadening the base of the repository to include areas hitherto unattended to. Currently, in the KNUST Library, a vigorous exercise has been carried out to create a comprehensive database of local institutional repository including students' theses, faculty publications such as articles, lecture notes, course outline, etc. What is now required to boost up this venture is the cooperation of interested parties, namely faculty members.

Providing Capacity at the College Level to Deal Directly with Students and Faculty Members
The KNUST runs a collegiate system. In this system there are six college libraries and a main library at the centre of the system. Faculty and students have proximate attachment to their colleges more than to the Main Library. The college libraries, as a matter of policy, must be given the primary responsibility to promote access and use of library materials so that the Main Library is occupied with a coordinating role. If this should happen then the colleges need to build capacity in terms of personnel, logistics, and infrastructure.

Decentralized functions in this regard will enable the colleges to effectively handle the issues about user education and access to resources since they will deal with comparatively small numbers of users.

Educating Faculty Members and Researchers
In a typical academic environment, faculty members and researchers constitute major players in the use of the library's resources as well as the generation of scholarly materials. By this they can be reliable partners in the development of a local repository. Secondly, they could be used as channels to reach out to the students they teach. Educating faculty members and researchers in the form of workshops and seminars will mean attracting their support to boost the efforts of the Library in the promotion of, and broadening access to information. Unfortunately some of these programmes are poorly attended by faculty. An example of this is the open access/institutional repository lecture organized by the Library on Friday 23rd October, 2009 (Asamoah-Hassan, 2009) which was attended by less than ten faculty members.

References
Ahenkorah-Marfo, M. (2005) The emerging roles of academic librarians in the electronic information environment at KNUST. **Journal of Science and Technology**, Vol. 25, No.1, p. 61.

American Library Association (1989) **In** Information literacy: History of the concept. http://en.wikipedia.org/wiki/Information_literacy (Accessed: 15th March, 2010).

Asamoah-Hassan, H. R (2009) Open access and the value of an institutional repository. **Open Access Week seminar presentation.**

Association of College and Research Libraries (1989) Presidential Committee on Information Literacy: Final Report.

Bannerman, V. J A. (2007) The critical role of libraries in the information society. **Ghana Library Journal,** Vol. 19, No.2, p. 15.

Boyer, E. L. (1987) **College: The undergraduate experience in America**. New York: Harper & Row, pp. 164-165.

Bruce, C. S. (1996) Information literacy: a framework for higher education. **Australian Library Journal**. Vol. 44, No.3, p.168.

Candy, P. C. (1993) The problem of currency: information literacy in the context of Australia as a learning society. **The Australian Library Journal**, Vol. 42, No. 4, pp 278- 289.

Carlson, D and Miller, R (1984) Librarians and teaching faculty: partners in bibliographic instruction. **College and Research Libraries**, Vol. 45, No. 6, pp. 483-491.

Cropley, A. J. (1977**) Lifelong education: A psychological analysis**. Oxford: Pergamon Institute for Education, p. 21.

Eisenberg, M. B. and Berkowitz R. (1988) **Eisenberk Berkowitz Model: The Big 6 guide to information problem solving**. http://slisweb.sjsu.edu/courses/250.loertscher/modeleisen.html (Accessed: 18th February, 2010).

Farmer, D. W. (1992) Information literacy: overcoming barriers to implementation. **In** Information literacy: developing students as independent learners. **New Directions for Higher Education.** Vol. XX, No.2, p.104.

Irving, A. (1985) **A study on information skills across the curriculum**. London: Heinemann Educational Books. p.22.

Kumar, G. and Kumar, K. (1983) **Philosophy of user education**. New Delhi, Vikas, p 35

Kwame Nkrumah University of Science and Technology. Library (2005) **University Library Strategic Plan 2K10,** Kumasi,Ghana: KNUST Library.

Oberman, C and Strauch, K (1982) **Theories of bibliographic education: Designs for teaching.** New York: Boker. p 65.

Rathore, J (1992) User education programmes in academic libraries. **Lucknow librarian**, Vol. 24, No. 3. pp. 104-107. (http://www.londonmet.ac.uk/deliberations/courses-and-resources/wilson.cfm (Accessed: 18th February, 2010).

Sam, R. B. (2007) User education for fresh students at the Balme Library, University of Ghana: overcoming the challenges. **Ghana Library Journal**, Vol. 19, No. 2, p. 67.

Tiamiyu, M.A. and Salako, O.A.(2008) Coverage of Africa-specific subject areas and sources by some major internet search engines. **Ghana Library Journal,** Vol. 20, No. 1, p.15

Tiefel, V. M. (1995) Library user education: examining its past, projecting its future - The Library and Undergraduate Education**. Library Trends** http://findarticles.com/p/articles/mi_m/387/is_nz_v44/ai_17726342 (Accessed: 18th February, 2010).

Townley, C. T. and Myers, D. (1985) Managing electronic information literacy education In **Teaching electronic information literacy: A how to-do-it manual** Donald A. Bareley, ed. p53.

Tucker, J. M. (1979) The origins of bibliographic instruction in academic libraries. **In** R. D. Stuart & R. D. Johnson (Eds.), **Neto horizons for academic libraries.** New York: K. G. Saur, pp. 268-276.

Wooliscroft, M. (1997) **From library user education to information literacy: some issues arising in this evolutionary process- A paper prepared for COMLA Workshop**, Gaborone, Botswana.