Information and Communication Technology (ICT) Knowledge and Skills of Librarians at the Nnamdi Azikiwe Library, University of Nigeria, Nsukka

Cyprian I. Ugwu
Principal Librarian
NCE, B. Sc (Nig), MLS (Nig)

Abstract

Purpose: The purpose of this study is to determine the level of Information and Communication Technology (ICT) knowledge and skills possessed by Librarians working at the Nnamdi Azikiwe library, University of Nigeria, Nsukka

Design/Methodology/Approach: The study was based on case study design. Thirty-three librarians were studied Paper questionnaire was used to collect data. Three approaches were adopted in the study for the purpose of understanding the ICT knowledge and skills of librarians. The first approach relied on perceptive measures to identify the types of ICT knowledge possessed by librarians studied. The second approach utilized the Rasch Model to measure the ICT competency levels of the librarians studied, and the third approached used quantitative techniques to identify the methods of ICT skills acquisition and constraints to acquiring ICT skill by librarian.

Findings: The findings revealed that the librarians studied have quite a good knowledge of ICT applications and have continued to acquire ICT skills through many methods. The most commonly used method by librarians to acquire ICT skills was found to be through colleagues. The ICT competency levels of Librarians were found to be very low and at the very first or basic level of ICT competency development. Development of ICT skills of librarians for optimum performance requires policy considerations.

Practical Implications: The study provides insight into areas where ICT policy can be developed in a university library such as development of ICT infrastructure, training of staff on ICT and organizational issues. The librarians' new work environment is rapidly changing and increasingly becoming competitive. New services are also emerging and librarians need ICT skills to be able to work effectively and render better services to users.

Originality/Value: This study provides Library Administrators with a framework for identifying ICT skills needed by librarians to be able to work in the new information environment.

Key words: Information Communications Technology, Knowledge Skills, Librarians, Nnamdi Azikiwe Library, University of Nigeria.

Paper type: Empirical

Introduction

Librarians have found themselves in a new environment, otherwise known as digital environment. This environment is characterized by uncertainties and increasing complexities of digital technologies (Nwakanma, 2003). In view of this, Morgan (1998) argued thus: in today's world, why would anybody trust a Librarian whose profession is about information and knowledge, who hadn't mastered a computer? This argument explains why we Librarians must be committed to providing ICT-based services. This in turn means that we will be failing those whom we serve if we do not acquire ICT skills (Olurunsola, 1997). The operational definition of ICT for this study is based on that provided by Bayode (1996).

Bayode defined ICT as the acquisition, processing, storage and dissemination of information by means of computers and other telecommunication equipment the noted that the processing, storage and retrieval facilities are provided by computers, while telecommunications provide the facilities for the transfer or communication of data or information. ICT was introduced in libraries to perform library functions and provide better services (Ashcroft and Chris, 2004).

Information and Communication Technology (Ict) Knowledge and Skills of Librarians at the Nnamdi Azikiwe Library, University of Nigeria, Nsukka.

Librarians need ICT skills for a number of reasons. The new working environment has become a competitive one and many players are now involved which include, ICT users, ICT

providers, ICT staff, and many others in the information profession (Wittmer, 2001).Some of these players especially the ICT users lack necessary IT skills to obtain quality information (Stubbings and McNab, 2001). Librarians will be called upon to act as both educators and intermediaries (Sharp, 2001). New services are emerging in the new working environment. We now have digital reference services (DRS) aimed at maintaining a twenty-four hour global references services. This service is being developed in many university libraries to replace the traditional library reference services (Dervis & Schdfield, 2004). This implies that Librarians must possess ICT skills to be able to render this service to users.

Published works in this area reveal these trends; too much emphasis has been placed on the development of ICT infrastructure in developing countries, and not enough considerations have been given to human resources development (Jensen, 2002; Lim, 1999; Magara, 2002). This is responsible for the much talked about global digital divide. Aschroft and Watts (2004) observed that in Africa, one in a hundred people have access to a PC. It has also been observed in the literature that there is a significant skills gap among information professionals in Nigeria (Aschcroft and Watts, 2004). This, according to these authors, has resulted in serious underutilization of electronic resources in many libraries in Nigeria. Finally Librarians in developed economies gained knowledge of new technologies though continuing containing educational programmes, profession training, and revision s to library school curricular (Ramzan, 2004).

Suggestion to reverse the above trends especially in developing courtiers include self learning to ICT, strategic management of resources and recruitment of technology literate staff to develop ICT skills in the exiting staff (Ashcroft and Watts, 2004, Steinmiellar, 2001). It has also been suggested that application of ICT to library processes will help Librarians develop appropriate ICT skills.

University libraries especially in Nigeria are focusing attention on applying ICT in their operations so as keep pace with the developments in both education and ICT around the world (Adeyoyin, 2005). This study is a shift from this current development in that it tries to reveal the level of ICT knowledge and skills among professional librarians in a typical university library in Nigeria. It was based on important individual factors that have been found in the literature as significant and critical in understanding and measuring ICT competences of professionals. These individual factors include: Demographics; ICT skills and Knowledge; and Altitudes/Motivation (DET, 2005; Nwakanma, 2993). Only the first two factors were considered in this study.

There are studies on the ICT knowledge and skills Librarians should posses; (Ashocft, Watts 2004, DET, 2005, Jones 2003, Nwakanma, 2003). Nyamboga, 2007). As synthesized from these studies, Librarians are expected to possess these ICT knowledge and skills: operating system, packages and programming languages, web awareness, technical skills and knowledge of online services. This study was focused on these ICT knowledge and skills.

Related research

Review of the literature shows a few studies on ICT knowledge and skills of the library professional staff in Nigeria. Much of the works in this area were western-based (Bawden, 2005; Joint, 2003; Jones 2003; Kumaresan, 2002; Nyamboga, 2004). In addition, the literature in this area is replete with suggestions about the specific skills librarians must possess so as to be relevant in the digital environment. (Dilerko and Harris, 1997; Kirkpatrick, 2007; Levine, 2007; Warmwin, 1998; Mogan, 1998; Nymboga, 2007; Parry, 2007).

Warmwin (1998) observed that because computers have assumed such a central role in our profession over the years, we need to know more about them. It is therefore imperative for Librarians to have technical skills and subject knowledge so as to add value to library services for user. Morgan (1998) considered other skills such as elementary programming of one or two languages, project management, and change management charge. Dilerko and Harris (1997) also observed that Librarians must develop the competencies to carry out effective searches on CD-ROMs, OPAC, on the web and other electronic databases. Parry (2007) outlined the ICT skills of Librarians as database management, web development, management of multiple media, metadata skills, knowledge of standards such as Z39.50 and Dublin Core.

Levine (2007) listed some of the ICT skills to include but not limited to word processing skills, spreadsheet skills, database skills, electronic presentation skills, web navigation skills,

website design skills, e-mail, management skills, windows Explorer skills, etc. Nyamboga (2007) enumerated the ICT skills among Librarians as operating systems, packages and programming languages, knowledge of library automation software, web awareness, knowledge of online facilities/services, technical services, and managerial skills.

Published works in these areas also reveal the methods used to train staff on information technology. The use of training tools has been found to be effective in training library academic staff. Some of these training tools include in-house training manuals, software programmes, and self-instruction and vendor annuals. Other methods identified by Kirkpatrick (2007) include individual training by coworker, individual training by other individual, individual training by supervisor, outside workshops, and in-house workshops of all these, he found that individual training by coworker was the most commonly used method. Barriers to the acquisition of ICT knowledge and skills using these methods are also critical issues to be considered (Ascrift and Watts, 2004, Jordan, 2003, Goulding, 2000).

Jordan (2003) was of the opinion that barriers to adequate ICT skills training in developing countries arise from both lack of IT literacy and the fact that many local library schools fail to integrate ICTs into their curricular other barriers or constraints as enumerated by Ashcroft and Watts (2004) include shortage of technology literate staff in libraries, the lack of skilled human resources to install and manage computer networks, and poor funding to develop ICT skills in existing staff. Goulding (2000) asserted that teaching departments have a responsibility to support the development of appropriate ICT skills to deliver modern information services, by incorporating new skills requirement into syllabi. One other solution is to encourage information professionals from developing countries to spend time learning in libraries in developed countries. This can be achieved through partnership programmes between libraries in developed and developing countries. The University of Nigeria library system had benefited form this arrangement where two of her staff were mentored for a period of three (3) weeks in the University Library of the Michigan State University

Research Questions

The following four research questions guided this study.

1. What are the types of ICT knowledge possessed by librarians under study?
2. What is the level of ICT skills possessed by Librarians under study?
3. What are the methods by which the librarians under study acquire ICT skills?
4. What are the constraints in acquiring ICT skill by librarians under study?

Hypotheses

Two hypotheses were formulated to guide this study. They are:

1. The ICT competency scores of librarians do not differ significantly by educational qualification.
2. The ICT competency scores of librarians do not differ significantly by year of work experience.

Methodology

The study adopted a case study design. The population of the study consisted of the professional librarians at the Nnamdi Azikiwe Library, University of Nigeria, Nsukka. The available records in the Office of the University Librarian showed that there are thirty-five (35) professional Librarians. These librarians were used for the study. The instrument used for this study, a 47 – Item Librarians' ICT skills Survey, was developed by the researcher. This consisted of three main clusters apart from section 1 which was for demographic data. The items for the clusters on ICT skills among librarians were placed on a 5-point scale of fully known, known, uncertain, not known, and not at all know. The items for the cluster on methods of acquiring ICT skills were placed on 4-point likert scale of Strongly Agree (SA), Agree (A), Disagree (D) and Strongly Disagree (SA). The clusters on constraints in acquiring ICT skills were placed on a 4-point scale of Strongly Agree (SA), Agree (A), Disagree (D) and Strongly Disagree (SD). Out of the thirty-six (36) copies of the questionnaire distributed, thirty-three (33) were returned. This gave a response rate of 93.9%.

The data collected were analyzed using mean and standard deviation. One way Analysis of variance (ANOVA) and t-test were used in testing the hypotheses. To be able to use t-test in

this study, the year of work experience was collapsed into two categories, namely. 0 – 10 years and above ten years for cluster one. The criterion mean of 3.0 was used in identifying the types of ICT knowledge and skills possessed by Librarians. For clusters two and three, the criterion means of 2.5 was used as cut-off points.

The ICT competency scores of Librarians were calculated using Rasch analysis. This technique is usually applied to people responding to a set of questionnaire items or a set of times for assessment. Generally, the responses to the items are scored 0, 1 (for two ordered categories); 0, 1, 2 (for three ordered categories); 0, 1, 2, 3, (for four ordered categories) and so on, to show the increasing level of a response on some variables. The responses are added across items to give a person a total score. This total score summarizes the responses to all the items. It also summarizes a person's standing on a variable. This total score was placed onto the ICT competency scale or index developed by the Department of Education and Training, Western Australia in 2005. This helped to determine each librarian's level of ICT competency. The scale is as shown hereunder:

0 – 39.9 Level 1

39.9 – 60.9 Level 2

Over 60.9Level 3

1. Those in level 1 have word processing skills and have used some aspects of internet, e-mail and file navigation. Generally, they have no spreadsheet and presentation skill and have little knowledge of database applications.
2. Those in level 2 posses the ICT skills in level 1. In addition, they have presentations, spreadsheet and navigational skills. They have internet and e-mail skills
3. Those in level 3 posses the ICT skills in 1 and 2. In addition, they have technical skills as well as knowledge of database application.

Findings

1. Demographic information of Librarians

Of the 33 Librarians studied 5 of them or 15.15% have first degree as their highest academic qualifications, 23 or 69.70% of them have MLS as their highest academic qualification, and the remaining 5 or 15.15% have Ph.D as their highest academic qualification. Considering the Librarians under study in terms of work experience 18 or 54.55% of them have their work experience falling below 10years while the remaining 15 or 45.45% of the Librarians have their work experience falling above ten (10) years.

2. Types of ICT knowledge possessed by Librarians

Table1: Mean responses of types of ICT knowledge and skills possessed by Librarians

S/No	ICT Dimensions	Mean	S	Decision
1	Operating systems	3.32	0.70	Positive
2	Packages and programming language	3.00	0.70	Positive
3	Web Awareness	3.49	0.61	Positive
4	Technical Skills	2.78	0.41	Negative
5	Online Service	3.37	0.36	Positive

Table 1shows the types of ICT knowledge possessed by Librarians. It reveals that the librarians have quite a good knowledge of ICT applications such as operating systems (3.32) packages and programming language (3.00), web awareness (3.49) and Online Service (3.37). Table 1 above also reveals that the Librarians do not have sufficient knowledge of technical skills area of ICT. However, the librarians have knowledge of only cataloguing and metadata in the technical skills area.

3. Level of ICT skills possessed by Librarians

Table 2: Librarians level of ICT Skills

S/No	Level	ICT Competency Scores	No. of Librarian s	Percentage (%)
1	Level 1	0 – 39.9	31	93.9%
2	Level 2	39.9 – 60.9	2	6.1%
3	Level 3	Over 60.9	0	0
		Total	**33**	**100%**

Table 2 shows the level of Librarians ICT competencies. The table reveals that 31 Librarians have ICT competency scores between 0 and 39.9. This figure represents 93.9% of the Librarians studied, and the result shows that these Librarians are in their first level of ICT competency development, with only 6.1% of them in the second level. None of the Librarians studied have risen to the third level, which is the desired level of ICT competency development. These results show that the Librarians studied have word processing skills with some aspects of use of internet, e-mail, and file navigation. Spreadsheet and presentation skills are not significantly noticed among the Librarians.

4. Methods by which Librarians acquire ICT skills

Table 3: Mean responses on the methods by which Librarians acquire ICT skills.

S/No	Means/methods	Mean	S	Decision	Rank
1	Formal education	3.06	0.75	Accept	5th
2	Informal education	3.00	0.71	Accept	6th
3	Though colleagues	3.30	0.64	Accept	1st
4	Through self-study	3.09	0.52	Accept	4th
5	Training at work	3.15	0.57	Accept	3rd
6	Attending IT programmes	3.18	0.58	Accept	2nd
7	Attending workshops/Seminar	2.88	0.99	Accept	7th

Decision level: items with $X \geq 2.5$ are accepted; otherwise they are rejected as methods for skills acquisition

Table 3 shows the methods by which Librarians acquire ICT skills. The table reveals that the Librarians acquire ICT skills through various methods. These methods in order of importance include: colleagues (3.30); attending IT programmes (3.18); training at work (3.15); self-study (3.09); formal education (3.06); informal educational (3.00); and attending workshops/seminars (2.88).

5. Constraints to acquisition of ICT skills by Librarians

Table 4: Mean responses on constraints to acquisition of ICT Knowledge an skills by Librarian

S/No	Means/methods	Mean	S	Decision
1	Lack of funds	3.39	0.66	Accept
2	Overload of working hours	2.94	0.66	Accept
3	Librarian's lack of interest in IT knowledge	2.03	0.81	Reject
4	Library management lack of interest in upgrading the IT skills of Librarians	2.24	0.83	Reject
5	Lack of professional recognition	2.27	0.67	Reject
6	Lack of ICT literate staff	2.18	0.64	Reject
7	Limited opportunities offered by IT	2.36	0.78	Reject

Decision level: Items with $X \geq 2.5$ are accepted otherwise they are rejected as problems

Table 4 shows the constraints to acquisition of ICT skills by Librarians. The table reveals that lack of funds (3.39) and overload of working hours (2.94) are two major constraints to acquiring ICT skills by Librarians. Other factors that are not regarded as constraints

include Librarians lack of interest in IT knowledge (2.03), library management's lack of interest (2.24); lack of professional recognition (2.27); lack of ICT literate staff (2.18); and limited opportunities offered by IT (2.36).

6. Academic qualification as important factor in understanding and measuring ICT competency

Table 5: summary table showing one way Analysis of variance (ANOVA)

Source of variation	Sum of squares	Degree of freedom	Variance estimate	F	P	f-critical
Between group	221	2	110.5	0.08	<0.05	3.32
Within group	3717	30	123.9			
Total	3938	32				

Table 5: shows that the F-test in not significant at 0.05 level of significance, this is because the F-critical is greater than the calculated value of F. This implies that the null hypothesis is not rejected. That is, the ICT competency scores of Librarian do not differ significantly by academic qualifications what this means is that educational qualification is not an important factor in understanding and measuring ICT knowledge and skills of Librarian

7. Years of work experience as a factor in understanding and measuring ICT knowledge and skills of librarians

Table 6: Summary of the difference between two independent means of year of work experience.

$\overline{X}_1$	$\overline{X}_2$	$S_1^2{}_2$	S_2^2	n_1	n_2	df	p	t-cal	t-critical
16.33	16.27	11.09	10.32	18	15	31	0.05	0.01	1.697

Table 6 show that the t-test is not significant at 0.05 level of significance. That the null hypothesis is not rejected. That is, the ICT competency scores of Librarians do not differ significantly by year of work experience. What this means is that year of work experience is not an important factor in understanding and measuring ICT competency of Librarians

Discussion

Librarians need ICT skills for innovative ideas and efficient delivery of services to users. The phenomenon of knowledge society requires that Librarians must possess ICT skills so as to be relevant. This study was focused to measure the ICT knowledge and skills possessed by Librarians at the Nnamdi Azikiwe Library.

It was found as shown in table 1 that the Librarians have knowledge of operating systems (3.32, package and programming languages (3.00), web awareness (3.49), These findings are in agreement with those of Dilerko and Harris (1997), Levine (2007), and Nyambogo (2007)

With the Librarians, knowledge of ICT applications, it was also found that the ICT competency scores of the majority of the Librarians (93.9%) fall between 0 and 39.9, thus placing them on the first level of ICT competency development. This implies that these Librarians posses word procession skills and have used some aspects of internet, e-mail, and file navigation. Only 6.1% of the Librarians have risen to the second level of ICT competency development. What this means is that the ICT competencies of the Librarians were found to be very low. This can be explained from the fact that the Librarians apparently lack technical skills.

The Librarians studied acquire ICT skills through various methods which include colleagues (3.30), work (3.15), self study (3.09) formal educational (3.06), informational education (3.00) and workshops/seminar (2.88). These results show that the most commonly used method was that of coworkers or colleagues. This finding agrees with that of Kirkpatrick (2005). The use of self study in acquiring ICT skills agrees with the finding of Ashcroft and Watts (2004). On the whole, the above results are in agreement with the findings of Ramzan (2004). He found that Librarians in developed economies gained knowledge of new technologies through continuing educational programmes, professional training and revisions to library school curricular.

In their effort to acquire ICT skills, the Librarians are being constrained by such factors as lack of fund (3.39) and overload for working hours (2.94). The lack of funds to develop ICT skills in the existing staff of the library agrees

with the findings of Ashcroft and Watts (2004) in their study of the electronic information environment in Nigeria. It was also found that lack of staff was not a barrier to Librarians ICT skills acquisition. This however contradicts the earlier findings of Ashcroft and Watt (2004). Lack of fund is not surprising because of decreasing budgetary allocations to Nigerian universities, which is taking its toll on university libraries. The working hours overload may not be unconnected with the increasing students enrolment in Nigerian Universities as well as the pressure on library services by both actual and potential users of the library.

Finally, educational qualifications and years of work experience are not significant factors in understanding and measuring ICT competencies of Librarians.

Limitation of the Study

This study was based on self-reported measures and cannot be said to be completely devoid of bias. This is one limitation of the study. Another limitation of the study is the number of Librarians studied which was very small. This would greatly affect the generalizabilty of the findings. With the use of one research instrument, the attributes of the research problem might not have been covered compared to the use of multiple data collection techniques.

Conclusion and Recommendations

The transition to digital environment is characterized by skill requirements of Librarians in order to remain on the cutting edge. The changing role of Librarians in the digital environment demands that their ICT skills and technological expertise should be enhanced.

Library Administration should be committed to these critical issues relating to ICT development and training.

1. ICT Policy: The University Library should have a separate ICT policy aligned to the University ICT policy. The University Librarian should, as a matter of necessity, be a member of the University ICT Team, the Library's ICT policy should foster and encourage partnership with the University's computing centre and other related units of the University.
2. Budget of ICT Development and Training**:** The University Library should have a separate budget for the development of ICT infrastructure and continuing staff development. In line with the global trends, about 7.5% of the library budget should be earmarked for building ICT platforms and staff training.
3. Mentoring: Since staff have shown that they acquire ICT skills through their colleagues, the University Library should develop a mentoring programme for the purpose of training staff informally on current issue in Librarianship which include ICT or digitalization of library resources.
4. International Partnership Programmes: The University Library should be committed to developing partnership programmes with other University Libraries outside the country for the purpose of staff training, collection development and networking.
5. Restructuring of the University Library System: the University Library should be restructured to allow for innovation and creativity among staff. Flattened organizational structure is preferred to the present hierarchical structure of the University Library.
6. Top Management Support: The University Library management should crate a room for self-study and other forms of informal training on ICT. Staff should be sponsored to participate in workshops, seminars and conferences on information and communication technology and other current issues in Library and Information Science.
7. ICT Skills: The University Library Management should pay attention to the development of the following ICT skills in their professional staff:
    a. Electronic presentation skills;
    b. Spreadsheet skills;
    c. Web navigational skills;
    d. Database skills;
    e. Website design skills; and
    f. Metadata skills.

References

Adeyoyin, S. O (2005). "Information and Communication Technology (ICT) literacy among the staff of Nigerian University Libraries, Available Online at: www.

emeraldinsight.com/research.register. Accessed 26.08/08

Aschcroft, Linda and Watts, Chris (2004). "ICT skills for Information Professional in developing countries: Perspectives form a study of electronic information environment in Nigeria; World Library and Information Congress: 70th IFLA General Conference and Council Available Online at:http://www.fila-org/iv/ifla70/prog04.htm. Accessed 22.08/08.

Bawden, David et al (2005), Education and training for digital Librarians: A Slovenia/UK comparison Asibl proceedings: *New library information perspective*, 57 (1), 85 – 90.

Bayode, D. D. (1996), 'Information technology and library development in Kwara state paper presented at the AFB of NLA, Kwara State Chapter, Ibadan, December 4.

David, Keith and Scholfield, Sally (2004), "Beyond the Virtual shore: an Australia digital reference service with a global dimension, *Library Review*, 53 (1), 61 – 65.

Department of Education and Training (DET) (2005), 'Teachers ICT Skills,' Western Australia: Department of Education and Training.

Dilerko, J and Harris, R. M. (1997), "Information technology and Social relations, "*Journals of the American Society for Information Services.*48 (8), 718 – 27.

Gouldig, A. (2001), "Never the twain shall meet charging syllabi of LIS schools, or, form Cat and Class to Intranet Construction and does it, matter? Impact, *the Journal of the Career Development Group* 4(4), July/Aug, 65 – 6.

Jensen, M. (2002), "African Internet Status: a report,' document available Online at: http://www3.sn.apc.orglafrica/afshat.htm: Accessed 6 May, 2004.

Joint, Nick (2005), 'Staff development and training in the digital library environment, *Library Review*, 52 (9), 417 – 21.

Jones, Joseph (2003), "A working academic Librarian's perspective on information technology. Literacy, "Library and Information Sciences Research, 13 (2), Available Online at: http://libres.curtin.edu.an/libres.13n2/index.htm. Accessed 25 September, 2008.

Jordan, E. (2003), "Crybaby Skill in the tertiary environment in-service education for Librarians for developing countries," Australian Library Journals, 52 (1) Available at: http://www.alia.org.au/publihsing /alj/52.1/fulltext/cybrary.skills.ltml.Accessed 7May, 2004.

Kirkpatrick, Theresa E (2005), "The training of Academic staff on Infoamton within the libraries of the Minnesota State Colleges and Universities System. Available Online at: http:/www.

Kumaresan, S. C. (2002), "Quality training and information professional, *"University News,* 40 (23), 1- 4.

Levine, Jenny (2007), "The shifted Librarian: 20 technology skills every Librarian should have, Available Online at: http:www.

Lim, E (1999), "Human resources development for the information Society, *Ascari Libraries*, 8 (5), 82 – 100.

Lockore, Stephen (2004), "How good are the free digital reference services? A Comparison of Library-based and expert services *Library Review*, 53 (1), 24 – 29.

Magara, E. (2002), "Applications of digital libraries and electronic technologies in developing countries: practical experiences in Uganda Library Review, 51 (5), 241 - 255

Morgan, E. L (1998), "Computer literacy for Librarians" *Computer in Libraries*, 18 (1): 39.

Naran, Prathiba (2001), "Where to form have: career directions for Librarians, In AL:IA 20012 TATE libraries conference, Available Online at: http:/conference.alia.org.an/tafe2001/paper/prathiba.nara.html.

Nwakanma, C. D. (2003), "Information Technology Competencies: identifying knowledge depths for library and information sciences education. *Canadian Journal of Information and Library Sciences* 27 (4), 75 – 76.

Nyamboga, Constantine M (2004), "Information Skills and Information Literacy in Indian University Libraries, *Program*, 38(6), 232 – 39.

Olurunsola, R (1997), "Staff training aspect of automation in a Nigerian University Library, *Aslib Proceedings* 49 (2), 38 – 42.

Parry, Julie (2007), "Librarians do fly: strategies for staying aloft, Available Online at: http://www.lib.cuhk.edu.uk/confernece/ aldp/2007/programme/aldp2007_full_paper/julieparry.pdf. Accessed 25 September, 2008.

Sharp, K (2001), "Internet Librarianship: traditional roles in new environment. *IFLA Journal* 27 (2), 78 – 81.

Steinmueller, W. E (2003), "ICTs and the possibilities for leapfrogging by developing countries, "*International Labour Review*, 140(2), 193 – 210.

Stubbings R. and McNab, A (2001), "Why doesn't it work? Managing user expectation in an electronic environment, In Graham, C ed. Online

Information 2001 proceedings. Oxford Learned Information, 129 – 133.

Warmwin, D (1998), "Facing the Challenge: technology training in libraries; *Information technology and libraries*, 216.

Wittwer, R. (2001), "Special Libraries- how to survive the twenty first century. *The Electronic library*, 19 (4), 221 – 225.