

USE OF ONLINE PUBLIC ACCESS CATALOGUE (OPAC) FOR RESEARCH BY UNDERGRADUATES IN DEVELOPING COUNTRIES: A VIABLE CHANGE AGENT

by

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ABSTRACT

The purpose of this paper is to identify use of library OPAC in realizing change in research and the nation by undergraduates in the university libraries and to determine the extent of utilization of library OPAC by undergraduates in the university libraries in Nigeria. A survey of three university libraries in Enugu, Lagos and Imo was carried out using questionnaire, observation checklist along with Focus Group Discussion (FGD) as instruments of data collection. Results shows that undergraduate students from these three universities used the OPAC to check availability of books in the library and the number of copies in the library stock. It further shows that the purposes for which OPAC was utilized was at a low level. The originality of the work lies in the strategies of creating awareness drive to users and students who are not yet aware of OPAC, and inculcating it as part of the teaching curriculum for LIS undergraduate students to bring about change in research attitude and to the nation in general.

Keywords: OPAC, Web OPAC, University libraries, Undergraduates, ICT, Change Agent, Developing countries.

Introduction

University libraries play an important role in university education and research. Historically, university libraries have been structurally influenced by the institutions they serve. Students' purposes for using the libraries at universities differ not only with respect to their faculties but also with respect to whether they are undergraduate or postgraduate students. The mission of the university library is to provide information services in support of teaching, research, and public services. Ekere (2006) shared this view by making an assertion that the main purpose of the university library is to support the objectives of the university which is to promote teaching, learning and research. Thus, the university library is meant to serve the undergraduates, postgraduates, lecturers and other members of the university community; and this cannot be achieved without the library's effective cataloguing system.

One of the most important library operations is cataloguing. It is traditionally, the most time consuming technical operation in libraries (Ajibero, 2001). Cataloguing, simply defined as an act of listing the various reading materials that exist in a given library or in an information center. The end product of cataloguing is the catalogue which provides the much needed access to library collections. Original cataloguing and classification of library materials is a painstaking and time consuming exercise. It is possible, using this method, to have library materials that should be processed fast to spend months in cataloguing section

(Zaid, 2008). University libraries started using computers to provide information services to their users long ago. They began by developing their own systems during the 1960s and 1970s, progressed to the provision of circulation systems, then moved to online cataloging systems, and finally to integrated library systems (Qari, 2012) which is made possible with the aid of Information Communication Technology (ICT).

With the invention of Information and Communication Technologies (ICTs), libraries now use various types of technologies to aid the services they render. Everyday new technological advances influence the way information is handled in libraries and information centers. The change and impacts of new technologies are felt by libraries in every aspect. All the functions and services that academic librarians used to provide manually can be provided through the use of ICTs which can do things better and faster. The term ICT is used to describe the ability to access information using telecommunications based Internet resources. It provides the ability to create, organize, manipulate and access information from remote locations across the globe in a matter of seconds. Aina, et al. (2010) define ICT as “the use and application of computers, telecommunications and microelectronics in the acquisition, storage, retrieval, transfer and dissemination of information to a wider and dispersed audience. In respect to this definition, ICT can also be seen as the use of digital system to effectively harness and process any form of information into a well meaningful message at a given time.

Modern ICT facilities such as internet, can enable the university library provide content and information dissemination by means such as electronic thesis and dissertations, which students and researchers can benefit from millions of pages of relevant information on the web. Sivakumaren et al (2011) in studying ICT Facilities in University Libraries listed ICT infrastructure as Computers, Printers, Laptops, Scanners and Photocopiers. On this same note, Aina et al (2010) identified the ICT facilities in use at the Lagos State University (LASU) library as Computer, Printer, Photocopying machine, LAN, Internet service, Multimedia projector, Smart Board, TV and Software which includes Alice for Windows. He also stated that the use of ICT is inevitable for any library in modern times.

With regards to ICT facilities, Chauhan (2011) outlined the following as ICT facilities used in libraries: computers, digital camera, webcam, smart card, e-books, e-journals, web-OPAC, CD-ROM etc. He stated that the CD-ROMs, coming along with books are assigned accession numbers and kept at the computer section to be issued by the users to get information whenever needed. Likewise, Etebu (2010) listed the ICT facilities available in Niger Delta University libraries as: Computers, UPS, Scanner, Printer, Antenna Mast, Vsat Proxy Server, Satellite Dish, Reliable Power Supply, Internet Connectivity, Websites, LAN, MAN, WAN, Email, CD-ROM, Telephone Landline, Telephone Network, Projector, Slide, Audio tapes, Audio tape player, Video tapes and video tape player.

Through information and Communication technology facilities, librarians have been placed in a vintage position of offering efficient service to her users. Information and Communication Technology (ICT) according to Krubu & Osawaru (2010) has brought unprecedented changes and transformation to academic library and information services. For instance, Online Public Access Catalogue (OPAC) can enhance access to library materials better and faster. OPAC is an online bibliography listing of a library collection that is available to the public. It is a computer based catalogue and can be accessed through computer terminals in a library. It can also be defined as a computerized database of a library’s holdings (Oke & Adenike, 2014).

Some OPACs are union catalog meaning that several libraries share the same database. The library staff and the public usually access it at computer terminals within the library, or at other remote locations. OPAC terminals began to replace card catalogs in many libraries in the 1980s. Since the mid- 1990s, these systems have increasingly migrated to

Web-based interfaces. Most OPACs are searchable by author, title, subject and keywords and allow users to print, download or export records to an email account (Dictionary for Library and Information Science, 2004). OPAC allows the on-line access of the public to the database of the catalogue (Repanovici, et al., 2008). OPAC is the front-end of reader contact with the book collection. With OPAC, the user's time is saved as promoted by Ranganathan. The prime user of the library is of course the student who has to use the library to supplement his lecture notes or write assignments; hence OPAC brings about a change in ways and attitude towards research. Conventional library and information service such as OPAC, current awareness services, users services, reference services, bibliographic services, document delivery, interlibrary loan, customer relations and audio visual services can be provided more efficiently and effectively using ICT. The availability of information and communication technology (ICT) facilities in university libraries is strategic to the achievement of timely and efficient user services. With online search facilities, information stored at different locations can be easily retrieved.

Objectives of the Study

The study was guided by the following objectives:

1. To determine the available ICT facilities used in supporting OPAC in the University Libraries.
2. To identify the purposes of use of library OPAC by undergraduates in the University Libraries.
3. To determine the extent of utilization of library OPAC by undergraduates in the University libraries.

Review of Related Literature

Extent and Purpose of use of OPAC by undergraduates

Mulla and Chandrashekara (2009) conducted a study and discovered that a majority 986 (90.29 %) of the respondents consult the OPAC to know the location of books in the library, followed by 619 (56.68%) and 804 (73.63%) to find the non-print materials or to check whether the required book was available in the library or not. Similarly 667 (61.08%) of the respondents consulted OPAC to compile bibliography of the books on a particular subject, 554 (50.73%) used OPAC to check the number of copies of the required books in the stock and 601 (55.04%) respondents did not respond to this query.

Onuoha et al (2013) in their research work examined the use of Online Public Access Catalogue (OPAC) among final year students. The study reveal poor OPAC utilization among respondents from Redeemer's University (RUN). Majority of the respondents (75.38%) indicated that they do not use the OPAC at all. Only 11 (16.92%) affirmed using it to a moderate extent.

Sankari et al (2013) on their own part carried out a study on the use of Online Public Access Catalogue (OPAC) by students and faculty members of Unnamalai Institute of Technology in Kovilpatti to determine the effective use of Online Public Access Catalogue (OPAC) at the library. The study shows the purpose of using OPAC which depicts that 75 (57.69 %) users consulted OPAC to know the availability of the required document in the library, 14 (10.77 %) to know whether the required document is issued/checked out, 41 (31.54 %) to know the location of the required documents and majority of users consulted OPAC to know the availability and location of the required documents.

Shiv Kumar and Ranjana Vohra (2011) study examined the Online Public Access

Catalogue usage by the students and faculty of Panjab University Library. The result of the study reveal that the purpose of using OPAC indicated that 119 (78.8 per cent) users consulted OPAC to know the availability of the required document in the library, 47 (31.1 percent) to know whether the required document is issued/checked out, and 103 (68.2 per cent) to know the location of the required documents. It is also clear that majority of users consulted OPAC to know the availability and location of the required documents.

Thanuskodi (2012) also carried out a study on Use of Online Public Access Catalogue. The study shows the purpose of using OPAC. It depicts that 74.03 % of users consulted OPAC to know the availability of the requisite document in the library, 41.82 % to know whether the requisite document issued and 78.36 % to know the location of therequisite documents. It is clear that majority of users consulted OPAC to know the availability and location of the requisite documents.

Ariyapala and Edzan (2002) in their study of Foreign Postgraduate Students and the Online Catalogue, indicate that most of the students from developing countries possess various levels of OPAC use abilities. Most indicate that there are no OPAC facilities in their home countries, and if available, it is limited to university libraries. The results of this study shows that a total of 81.0% of the respondents use OPAC to find book titles and 73.8% of them use it to find journal titles. About 47.6% of the respondents use it to check borrower information and 40.5% of them to find articles and conference papers. Only 31% use it for renewal of items borrowed.

Methodology

Descriptive survey design was the research design of this study. The population for this study was made up of 7,975 registered undergraduate library users of Nnamdi Azikiwe library, UNN; 3,756 registered undergraduate library users of FUTO library, Owerri and 1,825 registered undergraduate library users of Unilag library, Lagos making a total of 13,556 registered undergraduate library users in the three university libraries. The sample size of this study was 678 undergraduate library users. The sample represented 5% of the population of undergraduate users in the university as recommended by Chohen, Manion and Morrison (2011) for a large population in thousands. The instrument used for data collection is the questionnaire, observation checklist with the information gathered from Focus Group Discussion (FGD) with the students of these universities. The researcher with three research assistants in the different universities administered 678 copies of questionnaires directly to the respondents in the universities and this was with an intermittent monitoring by the researcher.

Findings and Discussion

The findings from the survey can be summarized as follows:

Table 1: Frequency and percentages of ICT facilities available for supporting OPAC in the University libraries

S/N	ITEM STATEMENT	UNN		UNILAG		FUTO		TOTAL		DECISION
		A	N A	A	N A	A	N A	A	N A	
1	Internet Connection	√	-	√	-	√	-	3(100%)	0(0%)	A
2	Adequate Bandwidth	√	-	√	-	√	-	3(100%)	0(0%)	A
3	Local Area Networks (LAN)	√	-	√	-	√	-	3(100%)	0(0%)	A
4	Wide Area Networks (WAN)	√	-	√	-	√	-	3(100%)	0(0%)	A
5	CD - ROM	√	-	√	-	√	-	3(100%)	0(0%)	A
6	Integrated Library Management	-	√	√	-	-	√	1(33.3%)	2(66.7%)	NA

	System Software e.g. Millenium										
7	Integrated LibraryManagement System Software e.g. Alice for windows	-	√	-	√	√	-	1(33.3%)	2(66.7%)	NA	
8	Integrated LibraryManagement System Software e.g. KOHA	√	-	-	√	-	√	1(33.3%)	2(66.7%)	NA	
9	Online Databases	√	-	√	-	√	-	3(100%)	0(0%)	A	
10	Online Cataloguing Rules e.g AACR2	√	-	√	-	√	-	3(100%)	0(0%)	A	
11	DVD - ROM	√	-	√	-	√	-	3(100%)	0(0%)	A	
12	OCLC Worldcat	√	-	√	-	-	√	2(66.7%)	1(33.3%)	A	
13	Library of Congress Online Catalogue	√	-	√	-	√	-	3(100%)	0(0%)	A	
Total		11/13	2/13	11/13	2/13	10/13	3/13				
			(84.6%)		(15.4%)		(84.6%)	(15.4%)		(77.0%)	
(23.0%)											

Key: A- Available; NA – Not Available

The table shows the ICT facilities available for supporting OPAC in the University libraries. From the table, there was an indication that almost all the university libraries under study have the ICT facilities available for supporting OPAC in the University which includes Internet Connection, Adequate Bandwidth, Local Area Networks (LAN), Wide Area Networks (WAN), CD – ROM, Online Databases, Online Cataloguing Rules e.g AACR2, DVD - ROM, Library of Congress Online Catalogue and Integrated Library Management System Software indicated by the decision „Accepted“. During the interview, the researcher was made to understand that FUTO does not have OCLC World-cat. It was observed that the university libraries under study have automation software but different from each other which is as a result of the different needs of their libraries.

From the Observation check list exercise, it was observed that UNN made use of *KOHA* as their Integrated Library Management System Software, Unilag made use of *Millenium* while FUTO migrated from *Alice for Windows* to *Alexandra* in 2015. This was as a result of the fact that FUTO started having problems with *Alice* when it came to periodicals. The analysis of the result obtained showed that out of the (13) items listed as the ICT facilities used in supporting OPAC, UNN has 11 (84.6%) in number, Unilag also has 11(84.6%) in number while FUTO has 10 (77%) in number. This showed that the university libraries under study have similar level of availability of ICT facilities but with difference in their Integrated Library Management System Software. These ICT facilities are also functional in all the university libraries but it was observed that some of the times, their bandwidth is not adequate for the students use resulting to network fluctuation and inability to use the OPAC except with external modems. UNN library have more computer systems for the OPAC use while Unilag and FUTO might need to increase their OPAC systems once demand increases more than it is right now.

Table 2. Frequency and percentage of the purposes of use of Library OPAC by undergraduates

S/N	ITEM STATEMENT	N=235 UNN		N=219 UNILAG		N=218 FUTO		N=672 OVERALL FREQUENCY & %		D
		YES	NO	YES	NO	YES	NO	YES	NO	
1	To check whether the required book is available in the library or not.	198 (84.3%)	37 (15.7%)	181 (82.6%)	38 (17.4%)	164 (75.2%)	54 (24.8%)	557 (82.9%)	115 (17.1%)	A
2	To find journal titles, articles and conference papers.	201 (85.5%)	34 (14.5%)	173 (79.0%)	46 (21.0%)	170 (78.0%)	48 (22.0%)	545 (81.1%)	127 (18.9%)	A
3	To find other materials	189 (80.4%)	46 (19.6%)	161 (73.5%)	58 (26.5%)	183 (83.9%)	35 (16.1%)	535 (79.6%)	137 (20.4%)	
4	To locate the book in the library	184 (78.3%)	51 (21.7%)	168 (76.7%)	51 (23.3%)	168 (77.1%)	50 (22.9%)	529 (78.7%)	143 (21.3%)	A
5	To find book titles	190 (80.9%)	45 (19.1%)	169 (77.2%)	50 (22.8%)	166 (76.1%)	52 (23.9%)	526 (78.3%)	146 (21.7%)	A
6	To search other databases.	196 (83.4%)	39 (16.6%)	133 (60.7%)	86 (39.3%)	162 (74.3%)	56 (25.7%)	505 (75.1%)	167 (24.9%)	A
7	To compile bibliography of books on a particular subject.	161 (68.5%)	74 (31.5%)	107 (48.9%)	112 (51.1%)	133 (61.0%)	85 (39.0%)	417 (62.1%)	255 (37.9%)	A
8	To find non- print materials	143 (60.9%)	92 (39.1%)	79 (36.1%)	140 (63.9%)	103 (47.2%)	115 (52.8%)	346 (51.5%)	326 (48.5%)	A
9	To check the number of copies in the library stock	92 (39.1%)	143 (60.9%)	65 (29.7%)	154 (70.3%)	68 (31.2%)	150 (68.8%)	232 (34.5%)	440 (65.5%)	R
10	For renewals of items borrowed	63 (26.8%)	172 (73.2%)	60 (27.4%)	159 (72.6%)	76 (34.9%)	142 (65.1%)	204 (30.4%)	468 (69.6%)	R
11	To reserve the book which is borrowed by someone	76 (32.3%)	159 (67.7%)	56 (25.6%)	163 (74.4%)	45 (20.6%)	173 (79.4%)	184 (27.4%)	488 (72.6%)	R
12	To check borrower's information	67 (28.5%)	168 (71.5%)	34 (15.5%)	185 (84.5%)	59 (27.1%)	159 (72.9%)	171 (25.4%)	501 (74.6%)	R

Keys: A= Accepted; R= Rejected; D= Decision

Table 2 presents the data collected on research question 2. The results showed that 557 (82.9%) undergraduates use OPAC to check whether the required book is available in the library; 545 (81.1%) students use OPAC to find journal titles, articles and conference papers; 535 (79.6%) UG students use the OPAC to find other materials. It was noted that few of the students 184 representing 27.4% and 171 representing 25.4% use OPAC to reserve the book which is borrowed by someone and to check borrower's information respectively. It is clear from Table 2 that majority of users consulted OPAC to check whether the required book is available in the library or not. The focus group discussion had with the students corroborates with the researcher's findings for the purpose of use OPAC in the university libraries. The students of these three universities confirmed using the OPAC to search for available books and periodicals.

Table 3: Mean and standard deviation of undergraduates' responses on extent of utilization of Library OPAC

S/N	ITEM STATEMENT	N=235		N=219UNILAG		N=218FUTO		OVERALL N= 672		R	D
		UNN									
		$\bar{x}$	SD	$\bar{x}$	SD	$\bar{x}$	SD	$\bar{x}$	SD		
1	To locate a book in the library	2.84	1.00	2.79	1.07	2.94	1.01	2.86	1.03	1st	HE
2	To find book titles	2.90	.93	2.80	1.01	2.81	1.03	2.84	.99	2nd	HE
3	To check whether the required book is available in the library or not	2.75	1.00	2.91	1.01	2.80	1.03	2.82	1.01	3rd	HE
4	To find other materials	2.86	1.02	2.60	1.11	2.97	1.04	2.81	1.06	4th	HE
5	To find article (s) titles	2.80	.94	2.70	1.04	2.65	1.11	2.72	1.03	5th	HE
6	To find journal titles	2.93	.95	2.60	1.06	2.57	1.09	2.71	1.05	6th	HE
7	To search other databases	2.81	1.06	2.39	1.12	2.79	1.10	2.67	1.10	7th	HE
8	To find conference paper (s) titles	2.61	1.06	2.34	1.07	2.42	1.07	2.46	1.07	8th	LE
9	To compile bibliography of books on a particular subject	2.57	1.05	2.07	.95	2.18	1.07	2.28	1.05	9th	LE
10	To find non-print materials	2.52	1.04	1.95	.95	2.17	1.07	2.23	1.05	10th	LE
11	For renewal of items borrowed	1.92	.97	1.91	.98	2.02	1.04	1.95	1.00	11th	LE
12	To check the number of copies of a book in the library stock	1.99	1.02	1.75	.90	1.81	1.05	1.85	.99	12th	LE
13	To reserve the book which is borrowed by some one	1.89	.93	1.72	.79	1.74	.96	1.79	.90	13th	LE
14	To check borrower's information	1.80	.98	1.62	.89	1.68	.95	1.71	.94	14th	LE
	Cluster Mean	2.51	.63	2.30	.61	2.40	.64	2.41	.63		LE

Keys: HE = High Extent; LE= Low Extent; D= Decision

Result in Table 3 revealed that item 1 – 7 had their mean values ranged from 2.67 – 2.86. These values were within the real limit of 2.50 – 3.49; indicating that the extent to which the students make use of library OPAC to those items was to a high extent. However, items 8 – 14 had their mean value ranged from 1.71 – 2.46 which were within the real limit of 1.50 – 2.49. This implied that the extent to which students make use of library OPAC to the items was to a low extent. Generally, all the 14 items had a cluster mean value of 2.41 which is within the real limit of 1.50 – 2.49; indicating that the extent to which students use library OPAC is to a low extent. The standard deviation of the 14 items ranged from 0.94 – 1.07; indicating the respondents were not far from the mean and their responses. The low extent utilization level result from the table three is in line with the focus group discussion had with the students. Some of the students confirmed never using the OPAC before, while some indicated that they have never had any reason to use it, some gave a report that OPAC is not yet popular while some said they have not heard of it before. The researcher attributes all these reasons to the low extent level of use of OPAC in these three university libraries.

Challenges and Strategies for enhancing the use of OPAC

In view of the focus group discussions had with the students and results from the preceding sections, there are a number of inevitable challenges which must be addressed for developing countries to utilize the library OPAC extensively. Obim (2017) had discussed a number of these challenges as lack of orientation from library staff before using the OPAC, to the computer systems not being enough, no guidance given before use, erratic power supply, lack of awareness about OPAC facilities and OPAC module not working properly. Some of the strategies stipulated for overcoming these challenges includes the need to train the users to acquire basic skills in searching, provision of regular power supply, More computers being made available for OPAC, Organization of Seminars / Conferences for OPAC users, provision of printed instructions on OPAC use, Organizing Lectures / Talks for OPAC users, Students being advised and encouraged to seek help from librarians when using OPAC, Keeping the OPAC up to date by adding new entries quickly and replacing the old entries, Circulating the list of newly arrived books and other reading Materials, organizing stand on services, making OPAC more user-friendly for online help and conducting OPAC instruction sessions.

Conclusion

This study reveals that there are ICT facilities available in supporting the OPAC service in the three university libraries under study. These support facilities are helping to realize change in students' research as well as in the nation generally. However, the level of availability of these facilities varies with regards to integrated library management system software of each university; where the software each of the institutions uses differs according to their specific need. The study also divulges that OPAC is used by most students to check whether the required book is available in the library or not, to find journal titles, articles and conference papers, to find other materials, to locate a particular book in the library, to find book titles, to search other databases, to compile bibliography of books on a particular subject and to find non-print materials. Furthermore, it was found out that undergraduates of the university libraries under study use OPAC at a low level. The challenge could be attributed to, among other things, the non-awareness of OPAC by these undergraduates. Hence, there is need for creating awareness drive to users and students who are not yet aware of OPAC, and inculcating it as part of the teaching curriculum for undergraduate students. If this will work, library administrators, instructors, educators and in fact all librarians should brace up to this challenge and find alternative pathways of creating awareness of OPAC for undergraduates in the universities for better research output and positive impact in the nation.

References

- Aina, A.J. et al. (2010). Information and communication technology resource support availability, utilization and proficiency skills among university libraries: the Lagos State University experience. *Asian Journal of Information Technology*, 9(4), 248-253.
- Ajibero, Matthew I. (2001). Computer-based Cataloguing System: Making a difference in the Knowledge Age. In *Libraries and Librarians: Making a Difference in the Knowledge Age: A compendium of papers presented at the 39th National Conference and AGM, organized by the Nigerian Library Association (pp.32 – 39)*. Owerri: NLA.
- Ariyapala, P.G. & Edzan, N.N (2002). Foreign postgraduate students and the online catalogue at the University of Malaya Library. *Malaysian Journal of Library & Information Science*, 7(1):57-67.
- Chauhan, V.A. (2011). Use of information and communication technology (ICT) in technology Libraries. Retrieved from www.vasantraychauhan.mht on February 23, 2011.
- Cohen, L., Manion, L., & Morrison, K. (2011). *Research Methods in Education* (7th ed.). Abingdon: ROUTLEDGE.
- Dictionary for Library and Information Science*. Joan, M.R. (2004). Library Greenwood Village. Colo: Libraries Unlimited.
- Ekere, F.C. (2006). *Administration of Academic Libraries*: Nsukka; UCO Academic Publisher Nigeria Limited.
- Etebu, A.T. (2010) ICT Availability in Niger Delta University Libraries. Published by *Library philosophy and practice*.

Functional Requirements for Bibliographic Records. Munich: K.G. Saur.

Krubu, D.E. & Osawaru, K. E. (2010), "The Impact of Information and Communication Libraries : a Case Study of the Kenneth Dike Library and University Of lagos Library. Libraries. Retrieved from www.vasantraychauhan.mht on February 23, 2011.

Mulla, K. R. and Chandrashekara, M. (2009). A study on the Effective Use of Online Public Access Catalogue at the libraries of Engineering Colleges in Karnataka (India). *International Journal of Library and Information Science*, 1(3), pp. 29-42.

Obim, I.E, Ezeani, C.N. and Nwadike, C. H. (2017). Challenges and strategies for enhancing the utilization of Online Public Access Catalogue (OPAC) by undergraduates in three Nigerian University libraries. *Proceeding of the 1st International Conference of Library and Information Science, UNN*. 25-30.

Oke, T. A. & Omoike, A. (2014). Online Public Access Catalogue [OPAC] in Nigerian Libraries : a Case Study of the Kenneth Dike Library and University Of lagos Library. *Ozean Journal of Social Sciences* 6(3), 55–65.

Onuoha, U. D et al. (2013). Use and satisfaction with online public access catalogue in selected university libraries in Ogun State, Nigeria. *Information and Knowledge Management*, 3(11), 2013.

Qari, A.A. (2012) Electronic library and library and information science departments in the Arabian Gulf region. *Journal of Education for Library and Information Science* 39(1):28-37.

Repanovici, A. et al. (2008). Information Systems: An Internet-enabled automation system destined for document management. *Proceeding of the 8th WSEAS International Conference on Instrumentation, Measurement, Circuits and system*. 128-13.

Sankari, R.L. et al. (2013). A study on the use of Online Public Access Catalogue (OPAC) by Students and Faculty members of Unnamalai Institute of Technology in Kovilpatti (Tamil Nadu). *International Journal of Library and Information Studies*, 3(1) Jan- Mar, 2013.

Shiv, K. and Ranjana, V. (2011). Online Public Access Catalogue Usage at Panjab University Library, Chandigarh. *DESIDOC Journal of Library & Information Technology*, 31(4):302-310.

Sivakumaren, K. S. et al. (2011). "ICT Facilities in University Libraries: A Study". Library Technology (ICT) in Nigerian University Libraries", *Library Philosophy and Practice* (e-journal). Paper 628. Retrieved from <http://digitalcommons.unl.edu/libphilprac/628>

on

December 19, 2016.

Thanuskodi, S. (2012). Use of Online Public Access Catalogue at Annamalai University Library. *International Journal of Information Science*, 2(6): 70-74.

Zaid, Y.A. (2008). The Use of the Internet for Cataloguing and Classification of Library Materials. The information Technologist; *An International Journal of Information and Communication Technology (ICT)*. 5(2):31-35.