The Use of Search Strategies in OPAC: A Comparative Study of Central Library, IIT Delhi; P. K. Kelkar Library, IIT Kanpur and Allama Iqbal Library, Kashmir University

Hilal Ahmad[1] **Muzamil Mushtaq**[2] **Sheikh Mohd Imran**[3]
[1]joeme198@live.com [2]naikoomuzamil@gmail.com [3]bilalgreen1@gmail.com

Doctoral Scholars
Department of Library & Information Science,
Aligarh Muslim University, Aligarh, India

Abstract

Automated cataloguing has greatly enhanced the search and retrieval operations of libraries. The online computerized catalogue popularly known as OPAC lets to search the terms of user's choice throughout the database of the holdings of a particular library. Users can make choice from a menu of different options through simple, advance, phrase searching, etc. in OPAC. In order to find out the use of search strategies in OPAC, the investigators have adopted survey method for present study. Under survey method, questionnaire and interview tools were used for collecting the necessary data. The present study reveals that a large number of users are using simple search and lesser number use advance searching. It is worthwhile to note that advance search facilities in OPAC enhance user's satisfaction by providing filtered, high recall and high precision results. Although, the results of present study reveal that there is no significant difference in using simple search in OPAC among the users of select libraries. Nevertheless, the users of select IITs have taken a clear cut lead in using the advance search facilities in OPAC than the users of Kashmir University. The findings of this study will help the select libraries to take appropriate steps in providing effective short term training course for the maximum utilization of advance search facilities in OPAC. In addition, it will also render a helping hand to other libraries to enhance the usage of OPAC.

Keywords: Library automation, OPAC, Search strategies, Simple search, Advance search, IIT Delhi, IIT Kanpur, Kashmir University

1 Introduction

The public access catalogue is one of the best innovations brought forth in the library world. It has substantially elevated access to the library holdings. The dial-in capability enables users to access not only their local libraries, but practically any library in the world (Riggs, 1992). The early 1980s represented an intense period in the development of online public access catalogues. In contrast to earlier catalogues based on circulation systems, some of the online catalogues developed during 1980s were designed in and of themselves as public access catalogues. One such catalogue was developed by Minnesota State University System Project for Automated Library System (MSUS/PALS). Like MSUS/PALS, the MELVYL prototype online catalogue developed by the University of California System wide Division of Library Automation was first implemented as a public access catalogue. Another trend was the development of integrated systems in which the public access catalogue was just one component of a broader online system. Later on, many of the systems developed during the 80s have strived to encompass other functions as well. The Total Library System (TLS) brought together acquisitions processing, circulation and online catalogue in a single integrated library system (Reynolds, 1985). Both MSUS/PALS and MELVYL were designed as multi-institutional system in which users in a specific library could search the catalogue of their own library, the catalogue of another library sharing the system, or a system wide union catalogue. The options available to a library in the implementation of an online catalogue expanded rapidly in early 80s. Many of the online catalogues developed in-house by libraries during this period were being offered for sale. In addition to marketing of online catalogues developed by libraries, most vendors of large scale automated circulation systems have introduced online catalogue modules (Reynolds, 1985).

The OPAC is considered as the heart of library operations and gateway of library services as it facilitates the patrons to the various services and acts as an instrument of change in today's libraries (Mulla & Chandrashekara, 2009). The various advantages of using an OPAC are:

- OPAC provides many access points for a single record;
- it offers access to an extensive range of information promptly;
- it gives information that is not accessible in printed form;

- it links to recent information as online databases are updated rapidly and more frequently;
- it eliminates the tedious typographical clerical work and arranging catalogue cards; and
- it gives speedier search facilities with the Boolean searching capability.

The search options are most powerful feature of most of the automated systems. Today OPACs expose their search functionality through two broad approaches- the basic search and advance search. The basic search usually allows a user to first select a single search field like keyword. The user then enters the term that he/she wishes to search for. The second broad approach of search is advance search or guided search which enables combining of terms from one or more fields with the use of one or more Boolean operators such as AND, OR, NOT, truncation, etc. (Haravu, 2004). This type of search broadens or narrows the search results as per the requirements of users. It also enhances the precision and recall of the results. The present study discusses the usage of simple and advance search strategies in OPAC among the users of IIT Delhi, IIT Kanpur and Kashmir University.

2 Review of the Related Literature

Several studies have revealed that the users have very unsatisfactory understanding of use of OPAC (Millsap & Ferl, 1993; Cherry, 1994; Hildreth, 1997). Mathews (1987) suggested some guidelines for screen layout as per the present understanding of how online catalogues are used. Borgman (1996) reveals that online catalogues are still hard to use since their design does not include satisfactory understanding of searching behaviour. A number of scholars have tried to tackle the problem of subject access searching and display mechanism in online catalogues. The scholars include Bates (1989), McGary and Svenonius (1991), Micco (1991), Tillet (1991), Ensor (1992), and Borgman et al. (1995). In their study (Kreslins, et al. 1994**)** discussed the standardization among Latvian libraries for bibliographic description. They revealed that though recent OPACs like OKAPI offer key word and subject searching by using Boolean operators, but most librarians confirmed that they do not have any standards for use of partially or fully controlled vocabularies in OPACs. Another study of ten OPACs providing a uniform, systematic conceptual framework and terminology for analyzing and comparing the functional potentialities and interface characteristics of OPACs on the basis of user perspective were studied by Hildreth (1997). The author also identified key interface

design alternatives. The study of (Sridhar, 2004) also identified some of the reasonably new features like adjunct thesaurus help, limiting device with filtering effect, along with relevance feedback and ranking of retrieval references to lessen searching breakdowns. The study of (Mehtab & Amita, 2008) highlighted the awareness and use of OPACs for information retrieval in Indian libraries. Authors revealed that many users are still unaware of complex searching and face number of problems of recall and precision, however in some searches; they are not able to find relevant documents. They revealed that necessary training should be provided for using software in efficient way. Hence it would be interested to examine if the present study of use of search strategy in OPAC have embedded such features and components.

3 Scope

Since, the OPAC is comprised of number of features; however, for the present study the investigators have studied only the usage of search strategies in OPAC among the users. Furthermore, the scope of present study is confined to the central libraries of two institutes of national importance that is to say IIT Delhi and IIT Kanpur and one of the first ISO Certified University libraries in India that is to say Allama Iqbal Library, Kashmir University.

4 Methodology

In view of the fact that the present study is based on survey research, therefore the investigators had used questionnaire method for data collection. However, where questionnaires failed to yield the required information, interview method was accordingly adopted by the investigators. The investigators approached directly to the users and handed over questionnaires to them. Significantly, care has been taken to have a representative sample of total population of users, though the random sampling was adopted. A total of 527, 315 and 555 questionnaires were distributed among the users of IIT Delhi, IIT Kanpur and Kashmir University respectively. The distribution and obtaining of filled-in questionnaires from respondents took two months from 1st October, 2011 to 1st December, 2011. Out of the total administered questionnaires, 473 filled-in questionnaires from IIT Delhi, 291 from IIT Kanpur while as 503 filled-in questionnaires were received from Kashmir University. 32 questionnaires from IIT Delhi, 10 from IIT Kanpur and 21 questionnaires from Kashmir University

were rejected due to incomplete responses. Finally, 441 filled-in questionnaires from IIT Delhi, 281 from IIT Kanpur and 482 questionnaires from Kashmir University were considered and used for data analysis. The total response rate of users in select institutes was 89.75%, 92.38% and 90.63% respectively.

Besides obtaining the necessary data in form of questionnaires and interviews, the investigators also consulted annual reports; pamphlets; brochures; newsletters; websites, etc. to cross-check the validity and authenticity of the data provided by the users of the select libraries. Significantly, investigators personally observed the status of OPAC and other search and retrieval facilities of the select libraries.

5 Objectives

The primary objective of this study was to evaluate the usage of search priorities in OPAC by the users of libraries under observation in particular with reference to:

- determine the extent of use of OPAC
- evaluate the extent of use of simple and advance search facilities in OPAC
- compare the usage of simple with advance search facilities among the users
- determine the search facilities available in OPACs of the select libraries

6 Software package used for automation

It is observed that Central Library, IIT Delhi and P. K. Kelkar Library, IIT Kanpur are using LSPremia version of Libsys software. While Allama Iqbal Library, Kashmir University is using Virtua software of VTLS Company for automation. The OPAC of both the select IIT libraries is available on intranet and therefore its access is restricted to campus of the institute only. On being asked about the reasons, it was opined by the library staff that due to some internal networking issues and web server problems in software, the OPAC is not currently available on web. However, it was also revealed by the staff of Central Library, IIT Delhi that the library is soon going to switch over to Libsys7 version that will overcome the drawbacks of LSPremia version. In comparison to select IITs, the OPAC of Allama Iqbal Library, Kashmir University is available on web and can be accessed anywhere anytime on internet.

7 Analysis and Discussion

To evaluate the usage of search strategies in OPAC among the users of libraries under observation, a well designed questionnaire based on structured pattern and definite format was distributed among the users. In addition, the responses obtained through interviews have been tallied with the responses obtained through questionnaires. Analysis of received questionnaires has been carried out with the help of tables, graphs and textual presentation. The collected data is divided into simple and advance search strategies as shown below in two tables:

Table-1 Simple Search Strategy

Priority	IIT Delhi				IIT Kanpur				Kashmir University			
	STU N=330	**RS N=84**	**FCT N=27**	**Total N=441**	**STU N=184**	**RS N=72**	**FCT N=25**	**Total N=281**	**STU N=416**	**RS N=40**	**FCT N=26**	**Total N=482**
Author search	105 (31.81)	32 (38.09)	9 (33.33)	146 (33.10)	58 (31.52)	14 (19.44)	9 (36)	81 (28.82)	72 (17.30)	10 (25)	5 (19.23)	87 (18.04)
Subject search	14 (4.24)	3 (3.57)	2 (7.40)	19 (4.30)	7 (3.80)	3 (4.16)	2 (8)	12 (4.27)	49 (11.77)	3 (7.5)	5 (19.23)	57 (11.82)
Title search	90 (27.27)	18 (21.42)	5 (18.51)	113 (25.62)	38 (20.65)	11 (15.27)	3 (12)	52 (18.50)	107 (25.72)	13 (32.5)	3 (11.53)	123 (25.51)

STU= Students (comprising UG & PG), RS= Research Scholars and FCT= Faculty.

(Figures within parenthesis represent %age)

7.1 Simple Search strategy

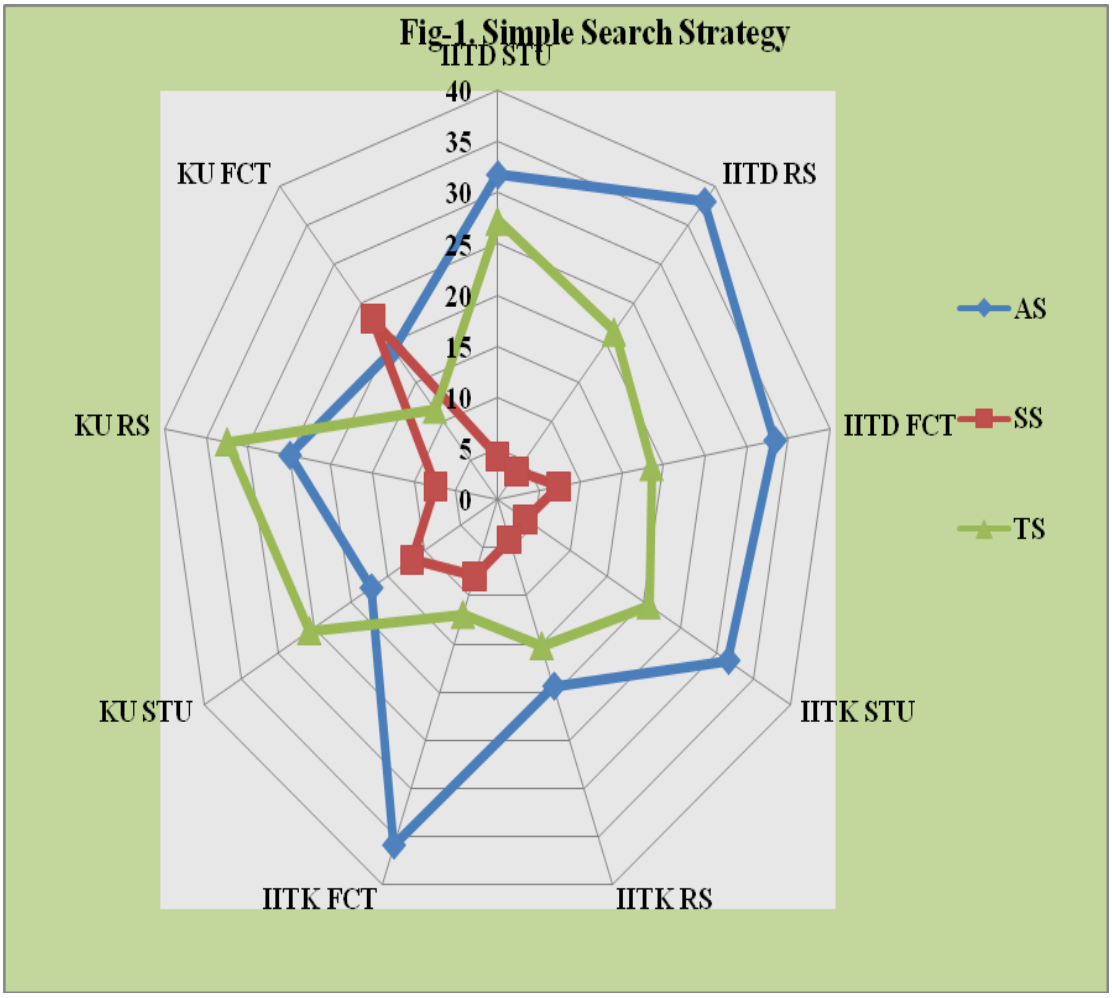
The data obtained in this regard reveal that 31.81% students, 38.09% research scholars and 33.33% faculty members in IIT Delhi prefer to use author search in simple search mode in OPAC. In IIT Kanpur, 31.52% students, 19.44% research scholars and 36% faculty members use author search in simple search mode. However, 17.30% students, 25% research scholars and 19.23% faculty members in Kashmir University prefer author search in this direction. It is notable to mention that

author search facility lets the users, who are intended to search the document by specific authors, to restrict their search term to author database only. It, therefore, saves the time of users.

The data further reveals that a small percentage of 4.24% students, 3.57% research scholars and 7.40% faculty members in IIT Delhi while as 3.80% students, 4.16% research scholars and 8% faculty members in IIT Kanpur use subject search in simple search mode in OPAC. In case of Kashmir University 11.77% students, 7.5% research scholars and 19.23% faculty members prefer subject search in this regard. It may here be stated that this search facility is intended for those users, who do not know or remember the exact author or title of the document they aim for. Instead, such types of users browse their interested sources by subject search. Thus, it leads to user satisfaction.

Furthermore, the table-1 shows that a considerable percentage of 27.27% students, 21.42% research scholars and 18.51% faculty members in IIT Delhi while as 20.65% students, 15.27% research scholars and 12% faculty members in IIT Kanpur choose title search in simple search. On contrary, 25.72% students, 32.5% research scholars and 11.53% faculty members in Kashmir University choose title search to search their desired document. Significantly, it has been seen that the title search is probably more common particularly among academic libraries. It lets users to retrieve their requested sources from title database leaving all other approaches aside. Thereby, it increases the user satisfaction by enhancing precision and recall of the results. It is noteworthy to state here that the OPAC of select libraries offer some other basic search options such as publisher, call no., journal title, ISBN, etc. However, it is observed that these search options are very less used by the users.

The obtained data is also shown in graphical presentation in fig-1 as below



AS'= Author Search, 'SS'= Subject Search, 'TS'= Title Search, 'IITD'= IIT Delhi, 'IITK'= IIT Kanpur and 'KU'= Kashmir University. 'STU'=Students, 'RS'= Research Scholars, 'FCT'= Faculty

Fig-1 represents the radar chart, showing the usage of simple search priorities in OPAC by the users of the libraries under study.

Priority	IIT Delhi				IIT Kanpur				Kashmir University			
	STU N=330	**RS N=84**	**FCT N=27**	**Total N=441**	**STU N=184**	**RS N=72**	**FCT N=25**	**Total N=281**	**STU N=416**	**RS N=40**	**FCT N=26**	**Total N=482**
*Boolean operators	94 (28.48)	22 (26.19)	8 (29.62)	124 (28.11)	65 (35.32)	35 (48.61)	8 (32)	108 (38.43)	69 (16.58)	8 (20)	5 (19.23)	82 (17.01)
Phrase search	8 (2.42)	3 (3.57)	1 (3.70)	12 (2.72)	7 (3.80)	4 (5.55)	1 (4)	12 (4.27)	0	2 (5)	1 (3.84)	3 (0.62)
Truncated search	7 (2.12)	5 (5.95)	2 (7.40)	14 (3.17)	5 (1.63)	4 (5.55)	2 (8)	11 (3.91)	11 (2.64)	2 (5)	1 (3.84)	14 (2.90)
Don't use S/A search	12 (3.63)	1 (1.19)	0 (0)	13 (2.94)	4 (2.17)	1 (1.38)	0 (0)	5 (1.77)	108 (25.96)	2 (5)	6 (23.07)	116 (24.06)

Table-2 Advance Search Strategy

STU= Students (comprising UG & PG), RS= Research Scholars and FCT= Faculty.

*Boolean operators such as AND, OR and NOT are used for combining terms with any of the combinations available in OPAC.

'S/A'= Simple or Advance

(Figures within parenthesis represent %age)

7.2 Advance Search strategy

Regarding advance search as depicted in table-2, it is observed that about 28.48% students, 26.19% research scholars and 29.62% faculty members in IIT Delhi use Boolean operators to combine the terms with any of the combinations available in advance search mode in OPAC. Relatively, 35.32% students, 48.61% research scholars and 32% faculty members in IIT Kanpur use Boolean operators in advance search mode. In comparison to select IIT libraries, a comparatively lesser percentage of users with 16.58% students, 20% research scholars and 19.23% faculty members in Kashmir University prefer to use Boolean operators in advance search facility of OPAC. However on individualizing the use of Boolean operators among the users, it was observed that 'AND' operator

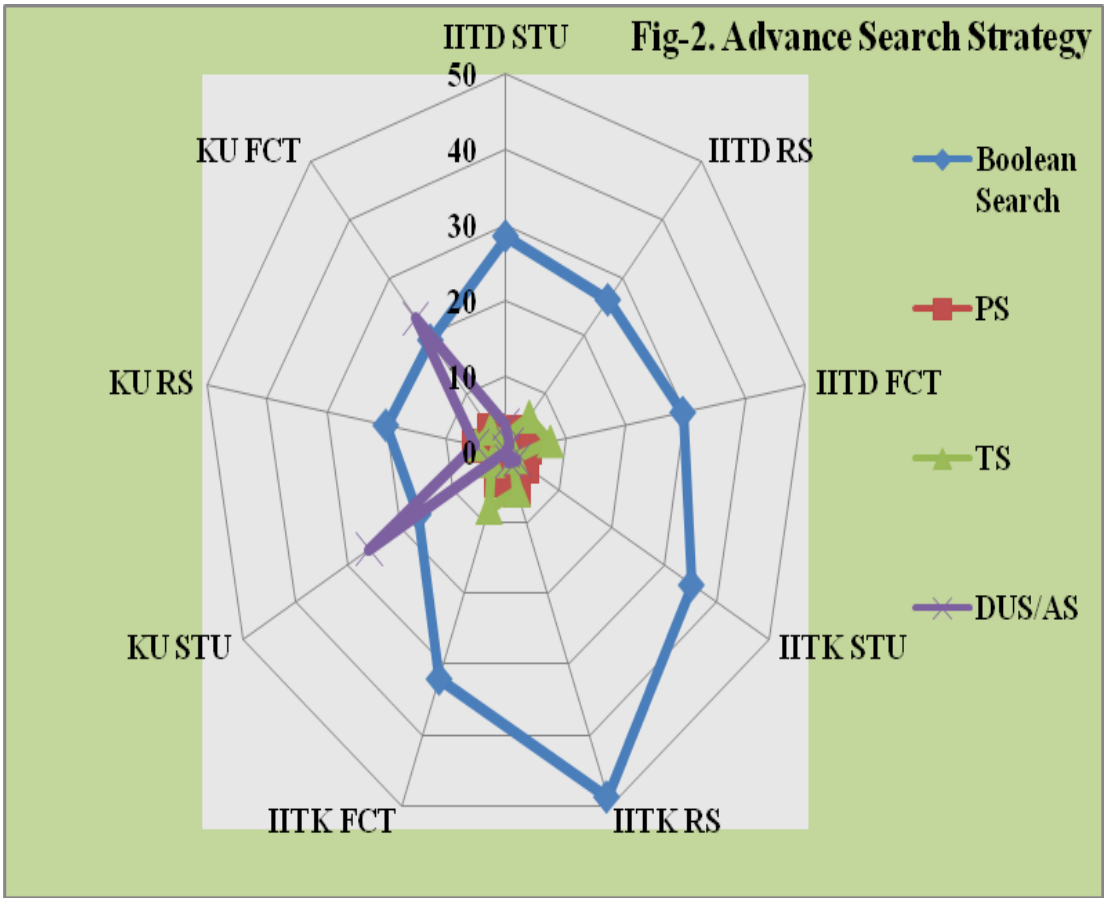
is being more used by the users while as the other two operators namely 'OR' and 'NOT' are very less used. Notably, the use of these Boolean operators helps users to broaden or limit their search term which in turn increases the precision and recall of the results.

The table-2 further reveals that a small percentage of users with 2.42% students, 3.57% research scholars and 3.70% faculty members in IIT Delhi use 'phrase' search in advance search facility of OPAC. In the same way, 3.80% students, 5.55% research scholars and 4% faculty members in IIT Kanpur prefer 'Phrase' search in advance search mode. Contrary to IITs, none among the students, while 5% research scholars and 3.84% faculty members in Kashmir University use 'Phrase' search in OPAC. It may be noted here that phrase search facility lets the users to search the exact document titles such as journal title, book title, etc. Besides this, it also helps to find the specific search string in different sources.

The data obtained in table-2 furthermore shows that an undersized percentage of users with 2.12% students, 5.95% research scholars and 7.40% faculty members in IIT Delhi use 'truncation' search in OPAC. This category of users is even small in IIT Kanpur, where only 1.63% students, 5.55% research scholars and 8% faculty members use 'truncation' search. The situation is somewhat identical in Kashmir University, where 2.64% students, 5% research scholars and 3.84% faculty members use 'truncation' search in advance search facility available in OPAC. It may be mentioned here that this is the search facility, whereby a search can be carried out for all different forms of words having the same common root. It helps to save the time of users by entering only some prefix letters of a truncated word (eg. comput*) will retrieve items on computer, computing, computation, compute, etc. Similar is the case with suffix truncation like i.e. '*hyl' will retrieve items on methyl, ethyl, etc.

Although, the OPAC of all the select libraries provide some other advance search options such as field specific search, year of publication, range search, proximity search, limit searches, etc. However, it was observed that these search options are very rarely used by the users of select libraries.

The graphical presentation of data regarding advance search strategies is shown in fig-2 as under



*Boolean search='AND', 'OR' and 'NOT' operators, 'P'= Phrase Search, 'T'= Truncated Search and 'DUS/AS'= Don't use Simple/Advance Search.

Fig-2 represents the radar chart, displaying the usage of advance search priorities in OPAC by the users of the select libraries.

8 Conclusion

Even though, Allama Iqbal Library, Kashmir University has taken a clear cut lead in facilitating its users to access the OPAC beyond its campus on internet. While as the OPAC of select IIT libraries is restricted to the campus of institute only. However, the present study revealed that there is still a considerable percentage of users in Kashmir University who are not yet using the versatile OPAC of its central library. The results of this study have revealed that the users of IIT Kanpur (46.61%) have taken a clear cut lead followed by the users of IIT Delhi (34.01%) in using the advance search facility in OPAC. Notably, the advance search facility comprise different advance search options such as Boolean operators AND, OR, NOT, truncation, phrase searches, etc. In comparison, the users of

Kashmir University are lagging behind as only 20.53% users are able to use the advance search facilities available in their library OPAC. The study however reveals that the majority of users in IIT Delhi (63.03%) followed by the users of Kashmir University (55.39%) and IIT Kanpur (51.60%) are using simple search in OPAC comprising different search options like author, subject, title, etc.

It is noted that OPAC is moving towards the next stage of web based OPAC. Notably, Allama Iqbal Library, Kashmir University has already successfully installed web based OPAC. While as the select IIT libraries require development in this direction. The web based OPAC has enabled the users of Kashmir University to search and retrieve their interested resources from their library anywhere anytime on internet. Therefore, it saves a lot of time of users in avoiding to visit the library for the resources that are not currently available in the library or issued to someone else. Significantly, it enhances the user's satisfaction in search and retrieval system of the library.

It is hoped that Allama Iqbal Library will shortly focus to the lacunae and will take appropriate measures to provide effective short term training programmes to enable its users for maximum and effective utilization of OPAC and its advance search facilities. This study also expects that the select IIT libraries will also take positive note for further improvement in the effective utilization of advance search facilities available in their OPAC. Since, OPACs have significantly improved over the years to save the time of users in search and retrieval processes. Therefore, it is expected that the select IIT libraries will soon install the web OPAC that is accessible to their users across the campus anywhere anytime on internet.

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