

# Evaluation and Comparison of Features of OPACs in University Libraries of Chandigarh and Punjab (India)

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## Abstract

The paper evaluates and compares the features and functionalities of OPACs in university libraries of Chandigarh and Punjab, to identify whether these OPACs are offering searching capabilities and facilities in accordance with present days, rapid paced, digital age and IT-based society. The findings reveal that although all these OPACs under study provide basic search options and facilities, but an evaluation of the checklist features indicates shortcomings that continue to persist among them. System designers have as yet not exploited the latest technology inputs for better utilization of OPACs. Therefore, libraries have to rethink the application of advanced web technologies to make the OPACs efficiently functional, usable and attractive for users of the fast changing technology era to access information on OPAC in a modern technological environment.

## Introduction

OPAC is an essential information retrieval tool to help academic library users to locate the library resources efficiently and effectively; it is a singular tool for accessing and properly utilising printed collection of a library. It is an entry point and a guided pathway to a library's treasures. "An OPAC provides the users the benefits of online access to the library's catalogue. It allows them to search and retrieve records depending on the underlying library management system, it also offers several facilities like online reservation, borrower status checking and so on".<sup>1</sup> It is no longer merely an inventory, but an investigative tool for locating what the library owns. At the same time, the internet also provides various options to academic community for obtaining information. Internet search engines, Google in particular, have impacted upon users today who are accustomed to the simplicity of search engines. Challenged with the Web and the Web-savvy users, most libraries have been facing difficulties in trying to adjust and reinvent the services they provide for them. The changing trends in Web search engines have driven the new generation of users to explore information themselves and seek personal help only at times when they were stuck. OPACs had been criticised for its difficult use and poor search capabilities and resultant output for more than 30 years and more so after the advent of the web. Consequently, libraries need to devote more attention to their most important reference tool – the OPAC.<sup>2</sup> Interestingly, users had been satisfied to a great extent with OPACs in the early nineties, but the situation changed drastically with the popularity of the web search engines because they provided the opportunity for easier and quicker means of finding information.<sup>3</sup> In addition, the search results produced by search engines are presented

using relevance ranking system which have proved more user-friendly than those of current OPACs.<sup>4</sup> In a recent study, Kumar<sup>5</sup> pointed out that a majority of the users performed searches on OPAC in a manner similar to popular search engines. Besides, they could not have known the differences between the inner-workings of OPAC and common search engines like Google.

Over the time OPAC improved its functions, but most of the improvements were merely superficial and not of the core functions that would actually have an impact on the user search behaviour.<sup>6-7</sup> Presently, the library community is pondering how OPAC can be made a single entry point or portal to find information available on resources inside libraries and even outside libraries, for example e-resources on the Web. In recent years, a large number of OPAC systems - components of Integrated Library Management Systems (ILMS), are available in the Indian market. Thus, keeping in mind the foregoing, the present study is an attempt to assess the features and functionalities of OPACs in the university libraries of the Union Territory of Chandigarh and Punjab State, to determine whether these OPACs are offering searching potential and facilities in accordance with the needs of the present days, rapid paced, digital age and IT-based society. This study will also give insight into the current status of the features and functions of OPACs in these libraries.

## Literature Review

Numerous research studies have been conducted on the OPAC. The present study explored literature related to the evaluation and comparison of OPACs. Cherry *et al*<sup>8</sup> evaluated the functional capabilities and interface features of twelve Canadian academic libraries for this purpose. The study indicated that there was a wide gap regarding the developments between the OPACs studied. These OPACs on an average had roughly half the features of the ideal OPAC. A study by Babu and O'Brien<sup>9</sup> examined the features and functions of six popular Web OPAC interfaces which were in the use in academic libraries of U.K. It was found that all OPACs had similar features. Advanced features such as hyperlinks, limiting and more flexible keyword searching were also valued but to a lesser extent. Similarly, Ibrahim<sup>10</sup> examined the compliance of ten bilingual Arabic scripts Web-based catalogues in the Gulf Cooperative Council (GCC). The findings revealed that a majority of the OPACs offered access points by author, title, subject and keyword. There was inconsistency in the given access points and types of searches. Hyperlinks to bibliographic elements was not uniform across all the surveyed OPACs, as about half the OPACs provided hyperlinks to both authors and subjects. The instructional information or user assistance gained the highest score.

Mahmood<sup>11</sup> carried out a study to analyse features and functions of 16 indigenous Web-OPACs in libraries of Pakistan. The findings showed that the indigenous Web-OPACs were at an initial stage of development and offered only basic facilities to the users. The study highlighted that there was an absence of MARC format and Z39.50 protocol in Web-OPACs, an essential aspect of shared cataloguing. However, due to the lack of training and awareness among librarians, the MARC standards were not well-known in Pakistan. Sauperl and Saye<sup>12</sup> examined whether librarians had actually made their OPACs more user-friendly by adopting technologies and techniques already present in other resources. Their findings identified changes in the information services studied over a seven year period. Least development was found in the library catalogues. It was suggested that the OPACs must be both attractive and useful and they should at least offer easy usage like their competitors.

Further, Luong and Liew<sup>13</sup> studied the usability features of the OPACs of 13 New Zealand academic libraries. The results showed that all OPACs covered main searching abilities like Boolean Operators, truncation, field searching and browse searching. Although most OPACs provided facilities for online renewal and reserving materials, their weak areas were searching, output, services, facilities, external links and search limits and strategy. Most OPACs received high scores in the areas of bibliographic display, text, layout, labels and user assistance.

A few studies have been conducted on the interfaces and functionalities of OPAC in Indian Libraries. Babu and Tamizhchelvan<sup>14</sup> conducted a survey on the features offered by OPACs in Tamil Nadu. The study indicated that among the search methods “exact searching”, “search by Boolean Logic”, and “truncation” were available for more than two-thirds of the sample and almost all libraries provided simple search features. Nearly two-thirds of OPACs had search limits like year of publication of the document being searched. However, the traditional access points, like author, title, class number and accession number dominated in all the OPACs. The option of subject search was generally not based on controlled vocabulary tools and only two-thirds of the libraries had user assistance. Another study, by Kapoor and Goyal<sup>15</sup>, analyzed the functional comparisons of five Web-based OPACs available in five Indian academic libraries i.e. IIT, Delhi, University of Hyderabad, University of Goa, GGS Indraprastha University, Delhi and NIM, Ahmedabad. The study showed that most OPACs offered basic search features required by users under options of author, title and control number. Most of them had developed varying interfaces for novice and expert users with basic and advanced search options. The search results were usually not ranked because of which the user had to scroll through the entire list of retrieved items in order to select an appropriate one. Madhusudhan and Aggarwal<sup>16</sup> in a recent study on OPACs of IIT libraries in India, found that there was a need to further develop or customise the web-based OPACs studied in searching, search limits and strategy, output, services, facilities, external links, and session filters. The study revealed that the OPACs of IIT libraries in India were lagged behind in exploiting the full potential of the library portal and federated search facilities.

The present literature review indicates that there is a significant lack of studies on the features and functionalities of OPAC in India. No such comprehensive study has been undertaken in this regard in university libraries of Chandigarh and Punjab State. This study is an attempt to fill the research gaps.

### **3 Objectives of the Study**

The study aims at evaluating the OPACs in university libraries of Chandigarh and Punjab. It is formulated along the following objectives:

- To ascertain the status of features and facilities of OPACs in university libraries of Chandigarh and Punjab.
- To evaluate the OPACs with the help of a structured evaluation checklist.
- To compare the various features, search capabilities and functionalities of OPACs under study.

### **Scope and Methodology**

The present study is confined to the OPACs operational in academic libraries of the universities of Chandigarh and Punjab i.e. Panjab University, Chandigarh, Punjabi

University, Patiala and Guru Nanak Dev University, Amritsar. These universities are using SLIM21, LibSys and WINISIS softwares respectively. The instrument used for data collection was a structured evaluation checklist to determine the features and functionalities of OPAC systems under study. Several checklists have been developed by various researchers, but this study chose the evaluation criteria designed by Babu and O'Brien<sup>17</sup> and included some modifications. Some new features were included which had been observed in the literature and other OPACs. The checklist covers interface, search capabilities and facilities of the OPACs. Table 1 represents the features available in OPACs of three library softwares under investigation. In the table, a tick mark indicates the existence of a particular feature in the OPAC.

## **OPAC Systems under Study: A brief overview**

### ***SLIM21***

Panjab University Library, Chandigarh recently installed a new library management system “SLIM21” and whereas earlier, it was using Techlib Plus. SLIM21 is an integrated, multi-user, multi-tasking library information software for the Windows environment, working on a single computer system or in a client-server multi-platform environment. It was produced by a Pune based library automation software supplier, Algorithms Consultants Private Limited. It is designed and developed in modules to take care of complete functionality required for automating libraries. It has five modules viz., acquisitions module, circulation module, cataloguing module, serial module and OPAC. It can be configured for the specific requirements of a library by selecting one or more of these standard and add-on modules. These modules exhibit features that make SLIM21 a top class software. The modules work on the same data from different nodes of a network. They can be installed independent of each other on different desktops. Retrieval of the data is simple, fast and efficient. Its cataloguing adheres to popular international standards. It also offers the “LibMap” module to maintain the map of a library. With the aid of LibMap, the users can view and specify physical location of documents in the library. The greatest advantage of SLIM21 is that it can make data entries in any language since it supports Unicode.

### ***LibSys***

LibSys is an integrated library management system developed by LibSys Corporation, Gurgaon. It is the most popular library software in India and has been installed in more than 1000 different types of libraries. LibSys provides full graphic user interface front end for the Windows client. It is designed to run on various platforms like Windows (95/98/NT/2000/XP), UNIX, Linux, Nowell Lan, etc. It is built around its own bibliographic database following ANSI Z39.50 format and support variable field length for different types of documents. It works on a client-server environment and supports Unicode that facilitates handling of both International and Indian languages. It needs additional authorization/identification to access various modules. There are six modules in this software viz., acquisitions system, circulation system, cataloguing system, serial system, OPAC and article indexing.

### ***WINISIS***

The Guru Nanak Dev University Library is using the WINISIS software after customizing this software. WINISIS is a Windows version of CDS/ISIS (Computerized Information Service/Integrated Scientific Information System). It is widely used as an

information storage and retrieval software all over the world. It was developed by UNESCO to meet the automation requirements of libraries and information centres, particularly in developing countries. WINISIS includes all features and capabilities of the MS-DOS version of CDS/ISIS. It can run under all Windows versions without problems. The most important feature of WINISIS is its capability to handle an unlimited number of databases; each of which may consist of completely different data element sets. It performs various operations of a library like bibliographic databases for an in-house collection like books, theses, manuscripts, etc. and automating acquisition procedure, circulation control, serial control, serial holdings, cataloguing, OPAC, etc.

## **Data Analysis and Interpretation**

### **Types/methods of searches**

Simple/basic search and advanced/expert search are indispensable search features provided by the OPACs of all the three university libraries. Search methods like Boolean search, phrase search, exact search and truncation are covered in all three OPACs to enhance the search capabilities. Only SLIM21 offers word adjacent and proximity search. It was, however, surprising that none of the OPACs was capable of providing federated search, faceted navigation, word cloud and thesaurus search.

### **Browsing capabilities**

Browsing search is an effective approach to searching that requires little effort and knowledge on the part of the user. SLIM21 and LibSys provide browsing search by author, title, and subject, class number, type of publication and publishers. In addition, SLIM21 also has the provision of browsing search by series, year of publication and by journal source.

### **Access points**

All surveyed OPACs offered access points by author, title, subject, and combined search for searching information/documents. Keyword search is made possible through title, author and subject in all OPACs studied. Class number, ISBN/ISSN and Accession number access points have been observed in SLIM21 and LibSys. Even though the OPACs examined showed inconsistencies in providing the access points, all covered the basic access points.

### **Search strategy**

A search strategy displays the method to devise an effective search statement to find a larger amount of relevant information quickly. The OPACs have different search strategy tools like a display of search strategy, provision of examples under each type of search and display of search history. The study found that only LibSys have “displays search strategy”. Critically the provision of demonstrative steps under each type of search for initiating any academic search was lacking in the three OPACs under study.

### **Search limit**

The provision of a search limit is an essential means for making the search meaningful and successful. The study found that each OPAC provides search limits through delineating the year of publication and type/form of publications, while language limiting is found only in the SLIM21 based OPAC. The sorting record is now

becoming more prevalent. Each of the three OPACs offers the facility of sorting the retrieved documents by author, title, and subject.

### **Bibliographic display and entry structure**

A bibliographic display of retrieval records in the OPACs serves different purposes. All three OPACs have provisioned for both short and long bibliographic displays. Each OPAC system has provision to customize the display screen as well as to limit the number of records per display. All OPACs featured a library structured entry format. Only LibSys have provision for catalogue card form display. The MARC format forms the backbone for conducting an exchange of bibliographic data electronically, besides LibSys, the other two systems did not follow the MARC format.

**Table 5.1**  
**Features of OPACs**

<b>Features</b>	<b>SLIM21</b>	<b>LibSys</b>	<b>WINISIS</b>
<b>Types of searches</b>			
a) Simple/basic,	√	√	√
b) Advance/expert/complex	√	√	√
c) Boolean search	√	√	√
d) Truncation	√	√	√
e) Phrase searching	√	√	√
f) Word adjacent search	√		
g) Proximity search	√		
h) Exact searching	√	√	√
i) Federated search functionality			
j) Faceted navigation			
k) Word cloud			
l) Thesaurus search			
<b>Browsing capabilities</b>			
a) Browsing by authors	√	√	
b) Browsing by subjects	√	√	
c) Browsing by title	√	√	
d) Browsing by class number	√	√	
e) Browsing by publishers	√	√	
f) Browsing by series	√		
g) Browsing by year of publication	√		
h) Browsing by journal source	√		
i) Type of publication	√		
<b>Access points</b>			
a) Author	√	√	√
b) Title	√	√	√
c) Subject heading	√	√	√
d) Keyword	√	√	√
e) Keyword in author	√	√	√

Features	SLIM21	LibSys	WINISIS
f) Keyword in title	√	√	√
g) Keyword in subject	√	√	√
h) Combined author/title, author/keyword searches	√	√	√
i) Call/Class number	√	√	
j) Series			
k) Accession no./barcode no.	√	√	
l) ISBN /ISSN	√	√	
m) Supports cross references			
<b>Search strategy</b>			
a) Displays search strategy		√	
b) Provides examples under each type of search			
c) Save the search strategy			
<b>Search limits</b>			
a) Provision for search limit by:			
i) Year	√	√	√
ii) Language	√		
iii) Type of publication, etc.	√	√	√
b) Facility for sorting records by title, author, subject, etc.	√	√	√
c) Ranks output by relevance			
<b>Bibliographic display</b>			
a) Provision for bibliographic displays:			
i) Short display			
ii) Full display			
iii) Both (i) & (ii)	√	√	√
b) Provision to customize display screen	√	√	√
c) Limiting the number of records per display	√	√	√
<b>Entry structure</b>			
a) Support for MARC format	√	√	
b) Provision for catalogue card form display		√	
c) Library structured entry format	√	√	√
<b>Output provision</b>			
a) Export/download of retrieved results	√	√	√
b) Provision for the transmission of retrieved records through e-mail	√	√	√

<b>Features</b>	<b>SLIM21</b>	<b>LibSys</b>	<b>WINISIS</b>
c) Provision for:			
i) Save retrieved results	√	√	√
ii) Print retrieved results	√	√	√
d) Search results can be added to the user's list/my cart	√		
e) Related items			
<b>Hypertext links in full bibliographic display</b>			
a) Authors	√	√	
b) Subject	√	√	
c) Class number	√		
d) Series			
e) Publisher	√		
f) Year of Publication	√		
<b>User assistance/help</b>			
a) On-screen help	√	√	√
b) Provision of online tutorial			
c) Provision of a list of search types	√	√	
d) Provision of procedural prompts or guidance to indicate next steps during a search			
e) Spell check facility/software			
f) Null retrieval produces a message	√	√	√
g) Requires little intervention from the staff	√	√	√
<b>Services/facilities</b>			
a) Interface with the circulation system	√	√	√
b) Provision for the options like:			
i) Document check out	√	√	
ii) ILL	√	√	
iii) Renewal	√	√	
iv) Reservation	√	√	
v) Any other			
c) Provision for copy location	√	√	
d) Location map			
<b>Communication capability</b>			
a) Provision of online mailboxes for users' suggestion and comments			
b) RSS			
c) Instant messages			



<b>Features</b>	<b>SLIM21</b>	<b>LibSys</b>	<b>WINISIS</b>
<b>External links</b>			
a) Access to Z39.50	√	√	
b) Links to e-journals and e-books	√	√	
c) Links to book review/ table of contents	√		
d) Provision for copy location	√	√	
<b>General</b>			
a) Provision for log-on/user password	√	√	
b) Customisation of features as per library requirement	√	√	√
c) Has time out features, if desired	√	√	
d) Facility for updating/adapting new versions	√	√	√
e) Explains the comments and coverage in the OPAC			√
f) Exit/log-off instructions	√		
<b>Other features</b>			
a) Linguistics capabilities			
i) Facility to accommodate multilingual libraries	√	√	
b) Capability to suppress indexing/searching:			
i) Initial articles ('a', 'an', etc.)		√	√
ii) Special characters (Inverted commas, colons, etc.)	√	√	√
c) New arrivals	√	√	
d) Expected items	√	√	
e) Recently returned items			
f) Patrons	√	√	
g) Separate option for journals	√	√	
h) Separate search interfaces for novice and experienced/ expert users			

### **Output provision**

It was observed that all OPACs under study had provisioned for export/download of retrieval results as well as transmission of retrieved records through e-mail. 'Save retrieved results' and 'Print retrieved results' facilities have been observed in all three OPACs. Only SLIM21 has provision of "Search results can be added to the user's list/my cart". None of the OPACs showed "related items", while 'related items' feature may be very helpful for users to select a related document to fulfill their information need.

### **Hypertext links in full bibliographic display**

Hypertext links to author, subject, class number, series, publisher and year of publication, in full bibliographic record display, is an important feature of the OPAC which can help a user see all the documents on a particular access points. Among the above mentioned access points, hypertext links to all access points except series, are found in the SLIM21-OPAC, while LibSys provided this feature for author and subject only.

### **User Assistance/On-screen help**

All OPACs examined offered user assistance/on-screen help to the user on their search interfaces. Both SLIM21 and LibSys systems have the provision of a list of option pertaining to search types. All OPACs surveyed lack provision of online tutorials, procedural prompts or guidance to indicate subsequent steps during a search and spell check facility/software that help users execute the search and utilize the search capabilities effectively. All the three OPACs offered the provision of a message for null retrieval of information. The OPAC studied required little intervention by staff for facilitating searches on it.

### **Services/ facilities**

Every OPAC offers an interface with the circulation system but there are variations in the facilities available therein. All OPACs display the document checked out or not. The option for inter library loan, renewal, reservation and display of document issued is found in all OPACs, barring the WINISIS OPAC. Both SLIM21 and LibSys OPACs display the location of copy. None of the OPACs, however, provided a location map.

### **Communication capabilities**

It has also been observed that none of the OPACs had any provision for mailboxes to post user's comments or suggestions. Further, they also did not have facility for RSS feed and instant messages to keep an update on recent arrivals.

### **External links**

It has been found that both SLIM21 and LibSys based OPACs offered the facility for providing hyperlinks to electronic sources and access to Z39.50 protocol. The Z39.50 protocol enables catalogues to search even remote OPACs. The SLIM21 system offers links to e-journals and e-books as well as links to book reviews/ table of contents, etc., while the LibSys provides only links to e-journals and e-books.

### **General points**

Except for WINISIS, the other two softwares provided for log-on/user password and time out features, if desired. Facility for updating/adapting new versions is available in all the three softwares. Customization of features, however, was possible as per the library requirements of all three OPACs under study.

### **Other features**

In addition to the above features, the OPACs have certain other features like new arrivals, linguistic capabilities, abilities to suppress initial articles and special characters, patron/my account/my information, expected items, recently returned items and separate search options for journal/serials and separate search interfaces for novice and experienced/expert users. SLIM21 and LibSys have the ability to accommodate

multilingual libraries and these systems also provide for new arrivals, expected items, and separate search options for journals and the exclusive provision for patrons to seek information regarding books on loan, overdues, etc. All OPACs had the capability to suppress special characters, while besides SLIM21, the other systems had ability to suppress initial articles. No OPAC system made provisions to indicate search interfaces separately for novices and experienced/expert users and also for recently returned items.

## Conclusion

The study brings out the prominent fact that none of the OPACs had all features and facilities listed in the evaluation checklist. There were variations in the features available among all three OPACs. Browsing search by author, title, and subject, class number, type of publication and publishers was found in SLIM21 and LibSys OPACs, while browsing search by series, year of publication and journal resource was provided in only SLIM21. The study revealed that all the OPACs offered search limits by year of publication and type/form of publications, while only the SLIM21 based OPAC provided search limits by language. The provision of MARC format and Z39.50 protocol was not found in the WINISIS based OPAC. Providing access to full-text internal and external resources is another feature that is also present in SLIM21 and LibSys OPAC. The user assistance feature was another weak area in the OPACs under study, while spell error checking facility/software, a significant feature of OPACs, was not observed in any of the systems. Further, evaluation revealed that there was no 'provision of procedural prompts or guidance to indicate next steps during a search' in any of the OPACs which, had they been available, would have been very helpful to users. Each OPAC had the ability to suppress initial articles and special characters. None of the OPACs provided separate search options for novices and experienced or expert users. The findings of the present study are in consistency with those of the previous studies of Babu and Tamizhchelvan<sup>18</sup>; Kapoor and Goyal<sup>19</sup> and Mahmood<sup>20</sup>.

The study also brought out the fact that none of the OPACs offered any feature based on the newer trends like 'faceted navigation', 'federated search', 'word cloud' and 'output by relevance ranking'. Using federated search facility, an OPAC can retrieve required information and other related resources from various search engines and databases and aggregators. Significantly, the latest communication technologies, instant messages and RSS feeds, are not available in any of the OPACs studied; while these features could prove useful in updating users about new arrivals in the library. This finding supports the earlier studies by Luong and Liew<sup>21</sup> and Madhusudan and Aggarwal<sup>22</sup>. No doubt, there was noticeable progress in the functionalities of OPAC, because several further search abilities and facilitation options were existent in the SLIM 21 OPAC used by the Panjab University Library, when the findings of this study were compared with those of the study conducted previously by Kumar and Vohra<sup>23</sup>. The features available now in the new OPAC are more than double those of the old OPAC.

All these OPACs suffered severe gaps with respect to the comprehensive evaluation checklist. System designers were unable to exploit the latest technology inputs for better utilization of OPAC. Thus, the features and facilities of these OPACs need to be improved to conduct effective and efficient searches on OPAC. It can, thus, be summarized that the OPACs in university libraries of Chandigarh and Punjab are lagged far behind other information retrieval systems like Amazon and Web search engines, particularly Google Search and Google Scholar. It is recommended that library in collaboration with software designers should explore the mechanisms to add

newer features in OPAC i.e. ‘faceted navigation’, ‘federated search’, ‘word cloud’ ‘output by relevance ranking, ‘related items, ‘instant messages’, ‘RSS feeds’ and ‘provision of online mailboxes for users’ suggestion and comments’ and so on. Users of the present fast paced and rapidly changing technology era need to adjust to the modern technological environment and consequently, modify their OPAC usage attitude and behaviour. Only then OPAC would play a significant role as a comprehensive reference tool in the library.

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