

Performances of Online Public Access Catalogues in Retrieval of Bengali Documents by Subject

Sambhu Nath Halder and Goutam Maity

Study investigates the performances of Online Public Access Catalogues (OPACs) in retrieval of Bengali documents by subject. Traces general search functionalities, subject retrieval, subject display in the bibliographic record, merits and demerits of the systems. Emphasises on the search fields, labelling of the fields, complexity of subject searching and customised display format of the OPACs. The comparative performances of the OPACs in retrieval of Bengali documents by subject are assessed using the scores calculated in terms of binary code, i.e. 0 and 1. Findings suggest the scope for multilingual retrieval capability in the software for the OPACs need to be utilised fully for retrieval of Bengali documents by subject. Besides, implementation of cluster subject browsing facility in OPACs may overcome the complexity of subject searching. Customised display format and uniform labelling of the fields are to be considered as pre-requisites for optimal use of the OPACs. The user interfaces of OPACs need to be integrated with federated search facilities for providing better search options to the users.

Keywords: Online Public Access Catalogue, Subject Retrieval, Web-OPAC

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1 Introduction

University libraries are at present shifting themselves by using new-age technologies for the collection and dissemination of their resources. Nowadays, information resources are available in electronic format and accessible from remote place via network. Online Public Access Catalogue (OPAC) is a powerful tool in a library for document retrieval. A study made by Madhusudhan and Aggar-

wal (2011) rightly pointed out that online catalogue is a natural and unavoidable tool for libraries today. However, OPACs have been improved significantly over the years. The third generation OPAC incorporates features characterized by the facilities of the world wide web (WWW) and is called the web-based OPAC (sometimes referred to as Web OPAC or Web PAC). Web OPAC usage is global and it can be searched from any corner of the globe. The catalogue is the surrogate of all resources available in a library which enables users to find out items therefrom. OPACs are designed and intended to offer scope for all kinds of users for retrieval of documents. Therefore, they are expected to be user-friendly and should provide multimodal access points for maximum use of library resources.

It is our observation that the OPACs are far better, at least in respect of options provided by them for searching and retrieval, than the traditional catalogues. However, the users of such OPACs, very often, face a lot of problems when they go to search and retrieve the Bengali documents by subject (Halder & Maity, 2013). Therefore, an attempt had been made to determine and identify the performance and failure of the existing OPACs in the university libraries in terms of searching and retrieval of Bengali documents by subject. The details of the study, including results obtained there from are presented below.

2 Objective

The study made an endeavour to assess the performances of the OPACs in retrieval of Bengali documents by subject. In order to achieve the goal, the study precisely made an attempt:

- i. to examine the basic features of library management software used for OPACs;
- ii. to identify the merits and demerits of features integrated in OPACs;
- iii. to examine the features and functionalities of the OPACs for retrieval of Bengali documents by subject;
- iv. to identify the fundamental properties of subject heading strings for Bengali documents and their implications for retrieval in OPACs;
- v. to measure the comparative performances of the OPACs in retrieval of Bengali documents by subject.

3 Methodology

In order to reach the objective, described above, a survey of

the performances of the OPACs in retrieval of Bengali documents by subject had been made during August – September, 2014. The sample on which the survey was conducted was consisting of the OPACs of four university libraries in West Bengal, i.e. University of Calcutta library, Jadavpur University library, University of Kalyani library, and Vidyasagar University library. Two universities were selected from the urban areas, and the other two universities were from the sub-urban or rural areas to make the sample representative of the population, and for convenience. However, because of non-availability of web based OPAC in the University of Kalyani, data had been collected from the OPAC node available inside that library.

The tool that had been used for this purpose was a specially designed schedule (*vide annexure*). With a view to enhance the validity and reliability of the schedule, experts in the field of Library and Information Science, Information Technology, Linguistics, Psychology and Statistics were consulted and requested to review the schedule critically. Then the schedule was finalised based on the suggestions given by the experts.

Collected data were classified, tabulated, analysed, compared and interpreted duly keeping in view the objective of the investigation. In order to measure the comparative performances of the OPACs in retrieval of Bengali documents by subject, a set of parameters/factors were used. The parameters were fixed on the basis of users' opinions study by Halder and Maity (2013), study of previous work (Madhusudhan & Aggarwal, 2011) and, obviously, from personal experience with the state-of-the-art ICT environment and the recent trends and theoretical foundations of library and information science.

4 Analysis

The University library OPACs under the study are functioning on different library management software (table 5.1). However, the software used by them for the purpose is identified as commercial software originated from India.

Table 1: Library Management Software used for the OPACs

University Library OPAC	Library Automation Software
University of Calcutta OPAC	SOUL
University of Jadavpur OPAC	LibSys
University of Kalyani OPAC	SOUL
Vidyasagar University OPAC	SOUL

Being aware of library management software used for the OPACs, the study examines their general search function-

alities, performances in subject retrieval, display of the subject in the bibliographic record, and features in user interfaces, the results of which are presented in the respective paragraphs given hereunder.

4.1 University of Calcutta OPAC

4.1.1 General Search Functionalities

The Calcutta University has Web-OPAC with customized graphical user interface. Different bibliographical databases are accessible with links provided in the website. Software for University Libraries (SOUL) is being used as library management software. User interface in the OPAC provides options for selection of database. Resources available under different databases are accessible only after selection of an individual database. Figure 1 shows how the user interface of the University of Calcutta OPAC can be used for selection of database.

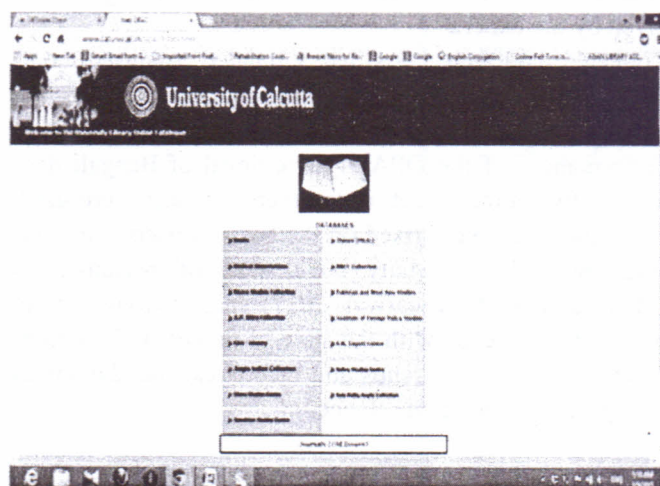


Figure 1: University of Calcutta OPAC Interface

However, tripartite search options are available in the OPAC (figure 2), such as basic search (provision for title and author only), free-text search (by title or author or subject heading or any other indexed part of bibliographic description) and Boolean search (commonly known as advanced search). Users are to enter their search input in a box provided for the purpose, and then to select the search button. From the drop down menu, anyone can choose one of the indexed terms such as title, author, subject heading, series, etc. for specific search.

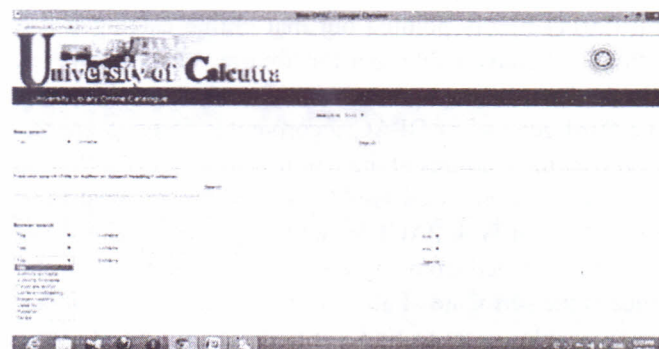


Figure 2: Search Options in University of Calcutta OPAC

4.1.2 Subject Retrieval

With respect to subject search, options are there searching by "subject headings" or a "class number". The subject headings index includes assigned subject terms for searching. However, the "class number" index shows searching options by DDC class number or call number of a document. The GUI of the OPAC shows that only English language subject headings have been used. The course of assigning subject headings for Bengali documents, the content of the document has been translated into its English equivalent terms after due analysis of their thought contents. Sometimes a transliterated form of subject headings has also been used for the Bengali documents.

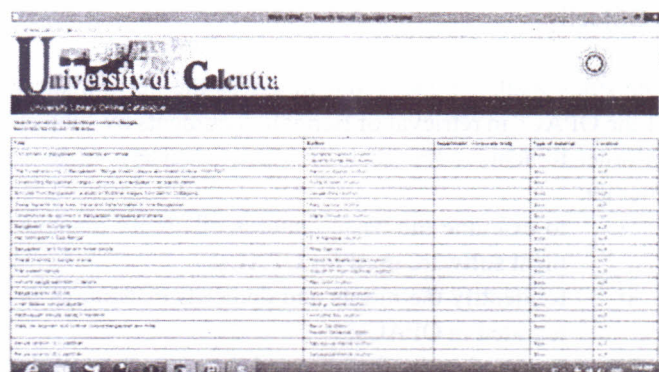


Figure 3: Results of a Search by Using a Subject Heading in the University of Calcutta OPAC

From figure 3, it has been observed that the display of the results of the search by using the keyword "Banga" appears with a list of titles along with their corresponding authors, type of material and location. Searcher can browse the results, and if not satisfied, he/she subsequently can go for a "new search".

4.1.3 Subject Display in the Bibliographic Record

In response to a search on a particular title appearing in the display of the results against a subject search, a "detailed description of item", showing full bibliographical data will be appeared in a new window. The description includes subject heading(s) and the classification number of the item, in addition to others. The Subject heading is assigned in English in capital letters. Although subject headings do not appear in the results of the primary search of an item, but hyperlink facilitates to get a detailed description of the item available there in the user interface.

However, the interface has a lacuna as it does not inform the users regarding the status of the system. Similarly, instructions, prompts and error messages do not appear on the screen.

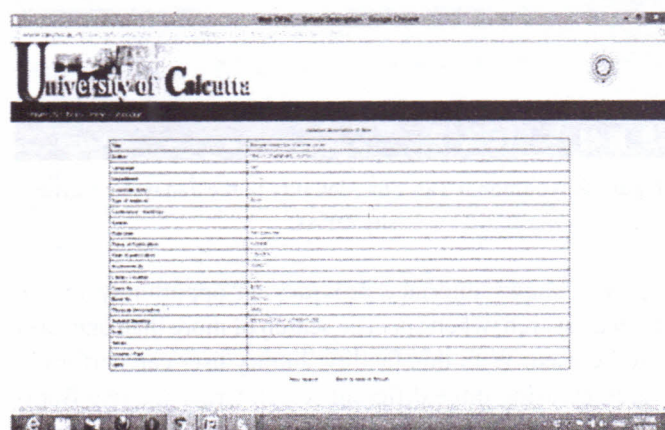


Figure 4: Detailed Bibliographic Description of an Item in the University of Calcutta OPAC

Detail bibliographic description (figure 4) of the item entitled "Bangla loksahitya charchar itihās" authored by Barun Chakrabarty shows its subject heading as 'BENGALI FOLK LITERATURE'. Besides, other bibliographic data for the item are also provided. However, it has been found that no hyperlink is provided against the bibliographical data. Users can only opt to select "New Search" or "Back to search Result" from the interface.

4.1.4 Merits of the System

- Web OPAC offers effective search facilities by different fields, like title, author or corporate author, subject heading, class number, publisher, series, etc. of the document.
- Web OPAC facilitates tripartite search options namely basic search, free-text search (title/ author / subject

heading) and Boolean search. End user can enter a search term or phrase into the box provided for the purpose, and choose any field from the drop-down menu. Combined search can be conducted using Boolean operators.

- Keyword search can retrieve and display item(s) if the search term appears anywhere in any field linked to the selected indexes. Such search can be done in two ways: (a) simple keyword search; and (b) advanced keyword search.
- There are hypertext links in the full bibliographic record display.
- OPAC is accessible around the clock 24×7, all over the world through the Internet.

4.1.5 Demerits of the System

- No option is given to search documents in Bengali language using Bengali script. Eventually transliteration disrupts the effectiveness, as well as the efficiency of the search procedure.
- It is not possible to limit the search by date, material type, language or location.
- When users do not have any specific requirement from the OPAC, a list of all the available items should be enumerated for general browsing. Here, no option is given for that sort of "Browse". Again, when users will be prompted with all the available search terms from the selected index (title, author, subject, etc.) arranged alphabetically, they can simply pick from the list and can build their query out of the available terms. It augments and obviates the search procedure.
- No facility has been provided to the users to enter their search statement in natural language.
- There is no facility to retrieve multimedia items.
- Uniformity and consistency are not maintained in assigning subject headings.
- There is no provision for customized display of bibliographic records.

4.2 Jadavpur University OPAC

4.2.1 General Search Functionalities

It is observed that the Jadavpur University has been using LibSys as Library Management Software for its automation. LibSys is the leading library management software in India and facilitates solutions like, Library automation system, Digital Resource Management System, etc. It also

includes WebOPAC through which any one can access library database from a remote place. Jadavpur University web-based OPAC offers multilingual facility and customized graphical user interface and display format.

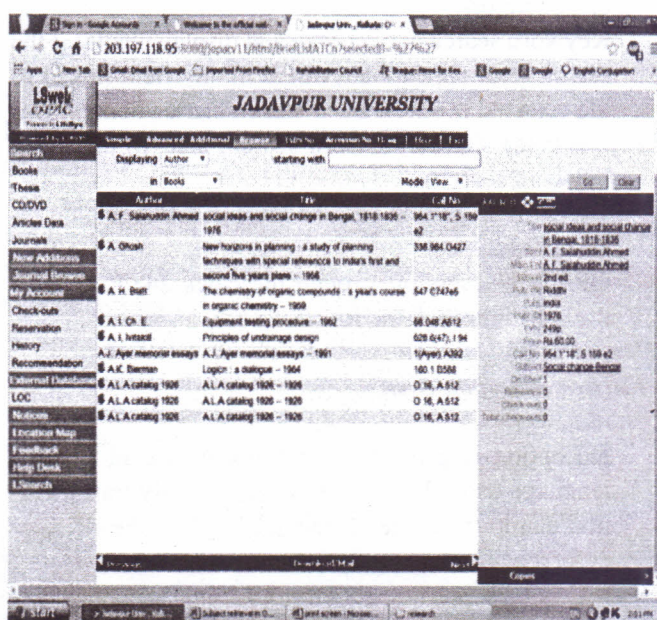


Figure 5: Browse Tab Functionality in the Jadavpur University OPAC

Figure 5 shows that there are multiple searching options available in the user interface. Simple, advanced, additional search options are available there, and by default browse option facilitates users to retrieve documents conveniently. Facility for a combined search of different fields, using Boolean operators, such as AND, OR, NOT is also available. The Interface enables users to use Boolean search, when specific search of more than one term is to be used. With this facility, library user can perform a search by using three different search terms and two Boolean operators at a time. Boolean operators can be entered between frequently used fields for searching the documents under corresponding database. Search results can be sorted according to the preference to search items. Search key fields are author, title, keywords, class number, accession number, etc. The OPAC is accessible through the graphical user interface based web browsers like Netscape Navigator, Internet Explorer, etc.

Figure 6 shows that user interface provides additional search options, which enable users to perform search using Boolean operators. Boolean search option facilitates users to combine search of different fields using Boolean opera-

tors, such as, "AND", "OR", "NOT"; the Boolean operators are used infrequently as the operator "AND" is assumed between two or more than two search terms or phrases.

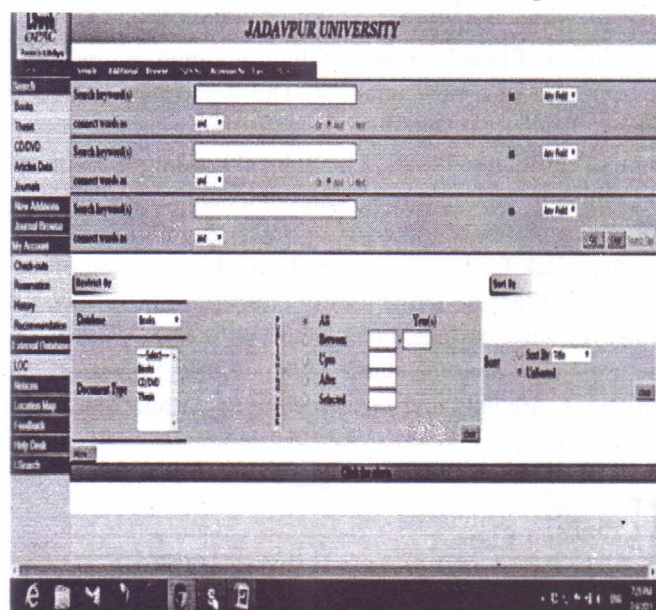


Figure 6: Additional Tab Functionality in the Jadavpur University OPAC

Figure 6 shows interface provides an opportunity to use Boolean search, when specific search of more than one term is to be used. With this facility, library user can perform a search by using three different search terms and two Boolean operators at a time. Boolean operators can be entered between frequently used fields for searching the documents under corresponding database.

4.2.2 Subject Retrieval

Jadavpur University OPAC uses Bengali language scripts to make subject headings for Bengali documents. Assigned subject headings are entered into LibSys database using *Avro Keyboard - Unicode and ANSI compliant Free Bangla Typing Software and Bangla Spell Checker* for Bengali type face. Subject headings are mainly selected from the title of the document, although sometimes they are selected from the thought content of the same.

It has been shown that for Bengali books, Jadavpur University assigns subject headings in Bengali language. In the OPAC, all bibliographical entries for the Bengali books have been found to be made in Bengali using Unicode standard. Users need to have installed Bengali font in the computer, from where they can perform the search using Bengali script in the OPAC.

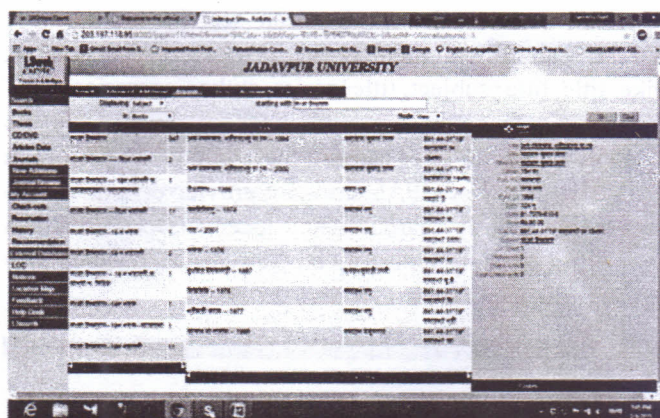


Figure 7: Bengali Subject Search Interface in Jadavpur University OPAC

Figure 7 shows that a default browsing option in the user interface is available in the Jadavpur University OPAC. The results of the search include a list of subject headings and respective sub-headings with number of hits. Previous and Next buttons enable searchers to forward or backward search. Anyone who wants to retrieve documents using a subject need to enter the word or phrase into the search box and select "Subject" field. On the other hand if anyone wants to browse documents will get an alphabetic list of items with hypertext links. However, due to the absence of a uniform and standard subject headings list in Bengali, consistency has not been maintained in assigning subject headings.

4.2.3 Subject Display in the Bibliographic Record

There is a facility for the users to choose display format. Systematic labelled bibliographic records are available in text format and on the other hand AACR-II format is also available there in the OPAC. Figure 8 reveals that Jadavpur University OPAC accommodates Bengali font to display bibliographical records. Bibliographic detail appears in tabulated form with proper label. However, figure 9 shows a detail display of a retrieved document in AACR II format. Title of the document, main entry (heading) and subject headings are found hyperlinked.

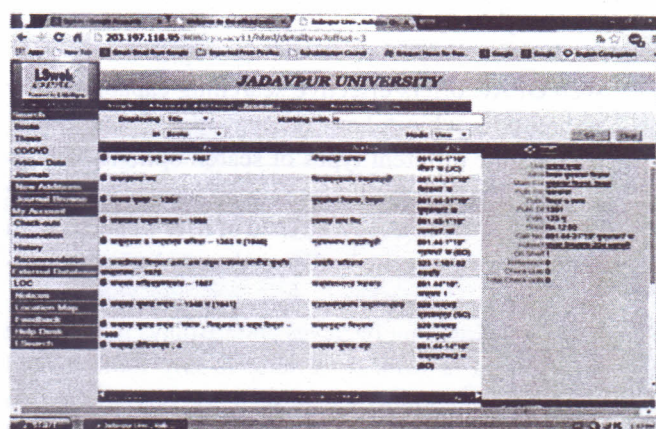


Figure 8: Bengali Subject Heading Browse Results in the Jadavpur University OPAC

Figure 8 reveals that Jadavpur University uses more than one subject headings as and when necessary. This facility enables users to get more successful search results. The possibility of relevant document retrieval is higher when more than one subject headings are used than the use of single subject heading for a book.

Figure 9 shows that the results of a specific subject search provide a list of relevant documents on the subject with brief information, such as title, author, call number, etc. Detailed bibliographic description appears on the right hand side, either in text, or in AACR II format. The users, thus get a convenient format of display.

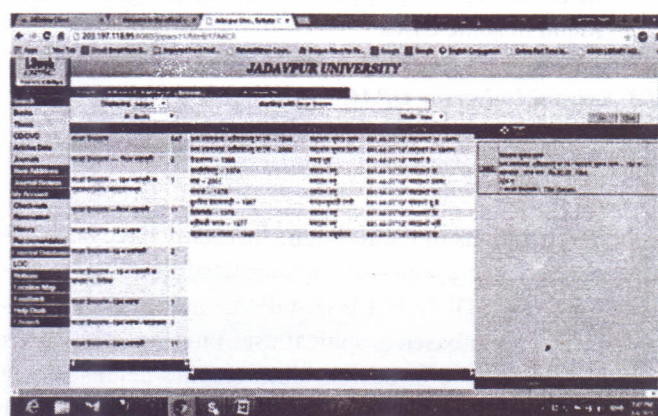


Figure 9: Bibliographic Details in AACR II Format in the Jadavpur University OPAC

In case of advance search, different Boolean operators, i.e. AND, OR, NOT can be used for precise retrieval of Bengali documents by subject.

4.2.4 Merits of the System

- Web OPAC offers effective searching capabilities by author, title, subject, keyword and other fields.
- It offers the different types of search options like basic search, which facilitates to enter a search with any word or phrase in a specific field of user's choice from the drop-down menu; advanced search; and multi-field search.
- Keyword searching retrieves and displays items if the search term appears anywhere, in any fields linked to the selected indexes. The search is possible in two ways: (a) simple keyword search; and (b) advanced keyword search.
- For browsing, there is a default screen which displays a list of terms in alphabetical order from the selected index (title, author, subject, etc.) alphabetically closest to the entered search term.
- There is a facility for the users to enter their search requirements in natural language.
- OPAC is accessible around the clock 24×7, all over the world.

4.2.5 Demerits of the System

- There is no facility of limiting search options by date, material type, language or location.
- There is no facility to retrieve multimedia documents.
- Inconsistency in assigning subject headings has been found in some cases.

4.3 Kalyani University OPAC

4.3.1 General Search-Functionalities

Library operations of the Kalyani University have been automated by using a well-known integrated library management software SOUL, but Web-OPAC facility is not initiated there. Menu based graphical user interface provides a platform to browse or search bibliographic details of the entire collection of the library. End user can search his or her required book(s) only from the OPAC computer node available in the library.

In order to search library resources, OPAC of Kalyani University provides searching options, such as, simple search,

Boolean search, advance Boolean search, and member OPAC search, etc. It facilitates users to select access points, like, title, title+subject, title+series, author, accession number, corporate name, uniform title and subject from the drop down menu. User can use these options to perform a simple search. The OPAC does not provide default browsing option, but by searching any letter or word users can have a list of items appearing on the screen and which they can browse (figure: 10).

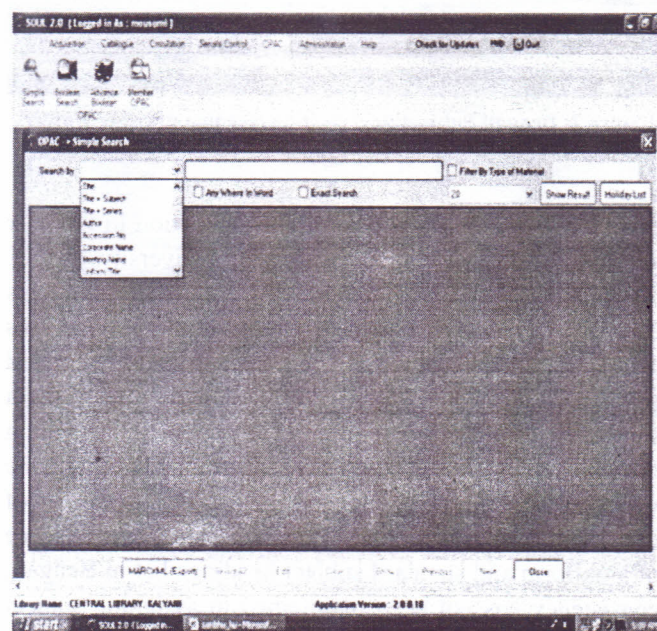


Figure 10: Simple Search Dropdown Menu in Kalyani University OPAC

It also includes specific search options, such as, "anywhere in word" or "exact search". Users can search a keyword by checking "anywhere in word" box, or the "exact search" box. Besides, it offers the facility to filter search by type of material from drop down menu (figure 11) consisting of label sequence – Textual documents, Theses, Braille, Magnetic, Laser/Optional, CD-ROM, Reports, Meeting documents, etc. To perform such search, users need to choose the field first and then to write the search query in the text box. Then they need to click on the check box option "filter by type of material" and finally select the relevant option. It is a good opportunity for searching the keywords or query terms appeared in a specific type of material. Thus, the redundancy of search results may get decreased by using this filter option.

4.3.2 Subject Retrieval

There is no by default browsing option in the OPAC. Any user who wants to retrieve his or her required documents using a subject, need to choose a subject or title+subject and then to enter the word or phrase into search text box and select type of material. A list of items appears with bibliographic information in alphabetic order, viz. serial number, title, search field, author, call number, location, accession number and status of the documents. There is an option available in the OPAC by which a user can select a particular document and export it in MARCXML format with a click on the "MARCXML (Export)" button. The "Basic Record" tab available in the interface then provides bibliographical records in brief (figure 15).

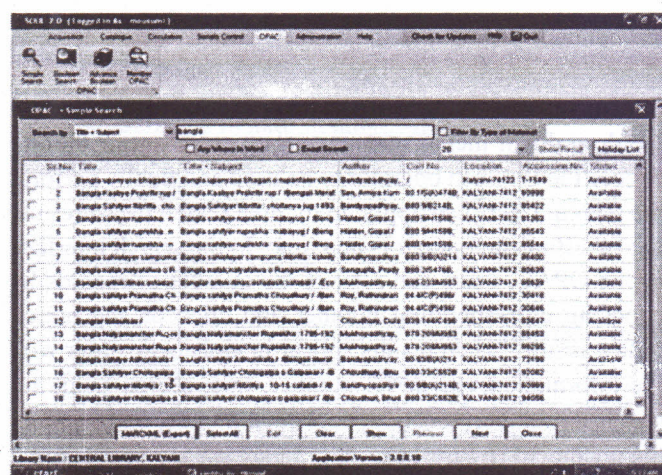


Figure 15: Subject Browse Results in Kalyani University OPAC

Although, Library of Congress Subject Headings (LCSH) has been used to assign subject headings, but it has been found that uniformity and consistency is not maintained in terms of language. The study shows that the subject heading for the Bengali book entitled "Chabbish Parganar laukik devdevi : palagan-o-lokesanskriti jijnasa authored by Debabrata Naskar (চব্বিশ পরগণার লৌকিক দেবদেবী : পালাগান ও লোকসংস্কৃতি জিজ্ঞাসা)" has been assigned in the OPAC as English term "Folk godliness" (figure 16). On the other hand, transliterated subject heading "Bangla Kavha-madhyjug" has been assigned for the Bengali book entitled "Madhyayuger Bangla kabye nari charitra/ Sambhunath Gangopadhyay (মধ্যযুগের বাংলা কাব্যে নারী চরিত্র)" authored by Debabrata Naskar (figure 17).

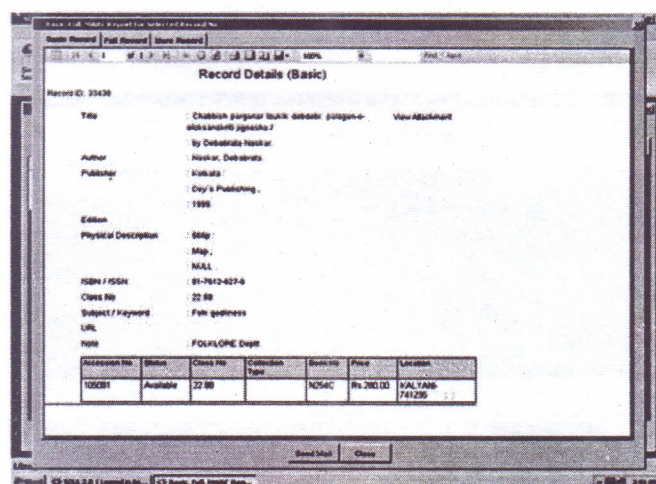


Figure 16: English Subject Heading in Kalyani University OPAC

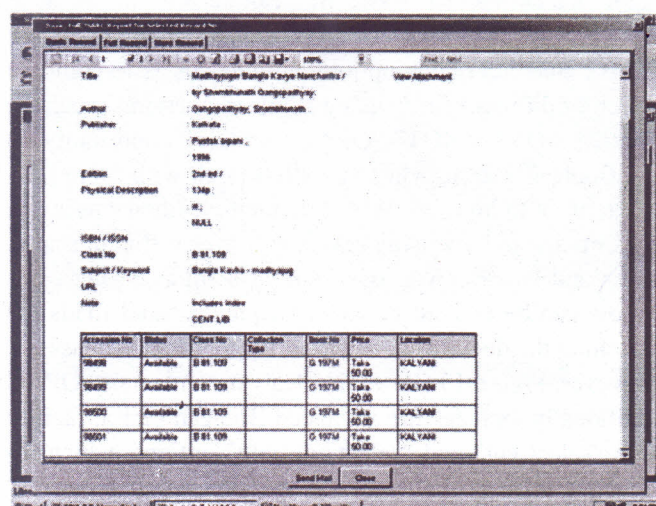


Figure 17: Transliterated Subject Heading in Kalyani University OPAC

4.3.3 Subject Display in the Bibliographic Record

The "Basic Record" tab provides brief bibliographical information of the record. In order to find the detail bibliographic information user can easily switch between basic record, full record and MARC record view by selecting the respective tab. Users can search all the fields along with a description of the fields by clicking on "Full Record" tab. Another attribute of this interface is "MARC Record" tab that enables searcher to see the same record in MARC21 tags (figure 18).

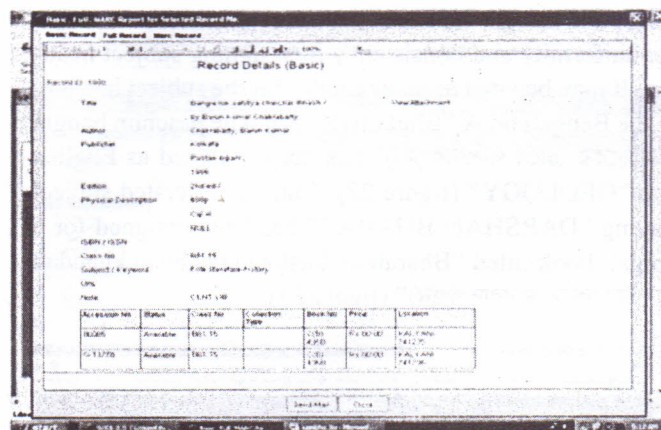


Figure 18: Bibliographic Record Full Labelled Display in the Kalyani University OPAC

Figure 18 shows the results of a record details search by the title 'bangle lok sahitya charcha itihash' authored by Barun Chakrabarty, where subject heading appears as 'Folk literature-history'. Record details interface consists of "Record ID" number and labeled bibliographic data, and respective entries have been given in the appropriate boxes. It has been found that no hyperlink is provided there in bibliographical entry to retrieve all resource on a given subject, such as, 'Folk literature-history'.

4.3.4 Merits of the System

- The OPAC provides effective searching capabilities by different access points.
- It offers search options like simple search, which facilitates to enter a search with any word or phrase in a specific field of user's choice from the drop-down menu; Boolean search; and multi-field search.
- System enables users to search a subject that may be included anywhere in the bibliographic record. It also restricts search result by field selection, database selection, etc. The search is possible in multidimensional ways: (a) simple search, (b) Boolean search, (c) advanced Boolean search, and (d) member OPAC search.

4.3.5 Demerits of the System

- No option is there to review the results of previous searches and combine them to generate new searches.
- No feature is included that enables users to enter their search requirements in natural language, alphabetically closest to the entered search term.

- There is no facility to retrieve multimedia documents.
- Inconsistency is found in assigning subject headings.
- There is no provision for customized display of the bibliographic records.
- OPAC is not accessible through the internet, or not even from campus wide local area network connection. Users can avail this service only on library opening hours.

4.4 Vidyasagar University OPAC

4.4.1 General Search Functionalities

Library operations of the Vidyasagar University have been automated by well-known integrated library management software, SOUL and Web-OPAC facility is available there. The customized graphical user interface provides a platform to search bibliographic details of the entire collection of the university library. Anyone can search for his or her required book(s) from remote places. Web-OPAC of the University (Figure 19) provides options for basic search and advanced search. Although the OPAC does not provide default browsing options, but by searching any letter or word, a list of items appears on the screen and the user can browse those items. By default, search is the title search, however, anyone can select from other fields (author, subject, series) in the drop down menu.

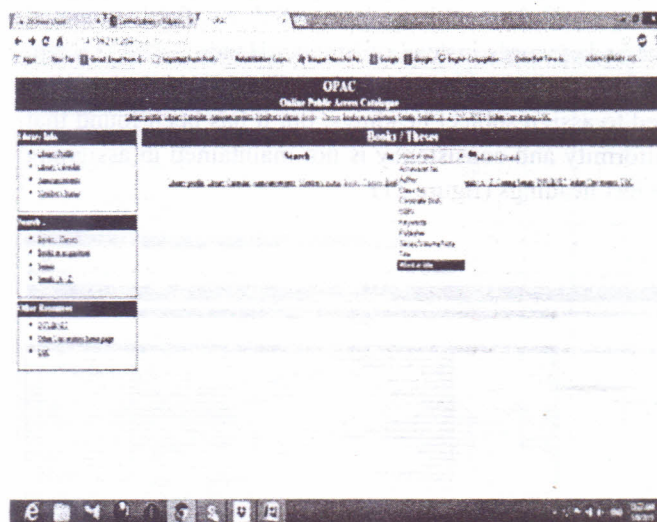


Figure 19: Simple Search Dropdown Menu showing Access Points in the Vidyasagar University OPAC

Advanced search option facilitates combined search of different fields using Boolean operators, when specific search of more than one term is to be used (figure 20).

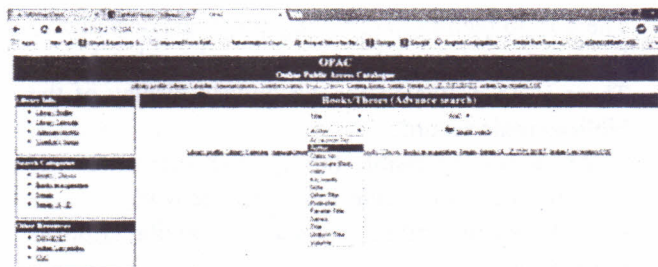


Figure 20: Advanced Search Options in the Vidyasagar University OPAC

On the other hand, the search results can be sorted on the basis of preference to search items. Web OPAC provides a search facility using different access points like, accession number, author, class number, corporate body, ISBN, keywords, publisher, series, title, etc. It is accessible through the GUI based web browsers like Netscape Communicator, Internet Explorer, etc.

4.4.2 Subject Retrieval

No default browsing option is there in the OPAC. Anyone who wants to retrieve documents using subject, need to enter the word or phrase into the search box. A list of items appears with keywords and title. Subject field is named here as keywords instead of Subject Headings. Although, Library of Congress Subject Headings (LCSH) is being used to assign subject headings, but it has been found that uniformity and consistency is not maintained in assigning subject headings (figure 21).

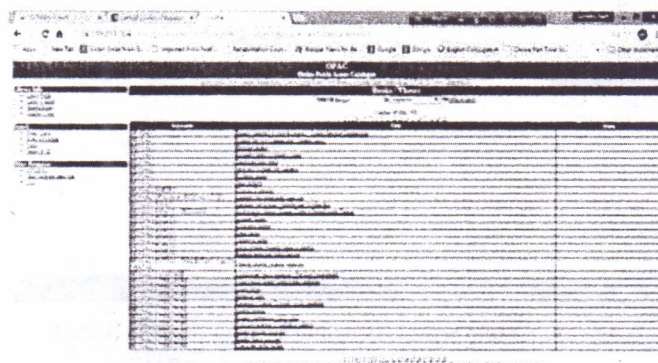


Figure 21: Subject Browse Results in Vidyasagar University OPAC

It has been determined from the study that for Bengali

books, Vidyasagar University has not been able to maintain uniformity and consistency in assigning subject headings. It may be cited as an example that the subject heading for the Bengali book "Bhutattwiker chokhe paschim bangla (ভূতাত্ত্বিকের চোখে পশ্চিমবাংলা)" has been assigned as English term "GEOLOGY" (figure 22). But, transliterated subject heading "DARSHAN BHARAT" has been assigned for a Bengali book titled "Bharatiya darshane bhabhad khandan (ভারতীয় দর্শনে ভাববাদ খণ্ডন)" (figure 23).

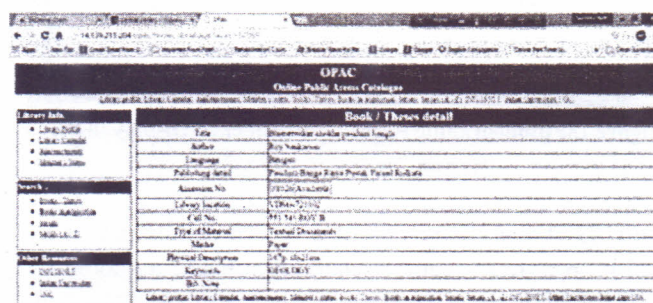


Figure 22: English Subject Heading in the Vidyasagar University OPAC

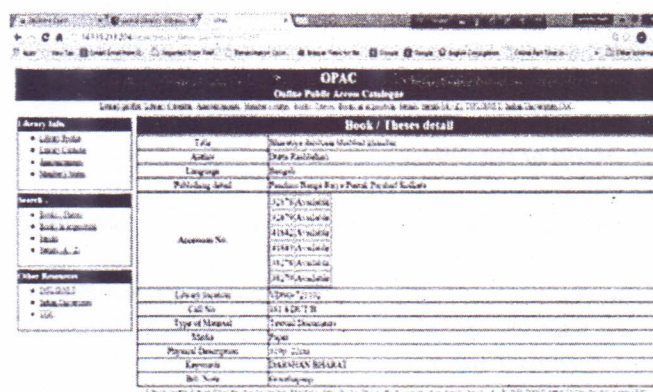


Figure 23: Transliterated Subject Heading in The Vidyasagar University OPAC

4.4.3 Subject Display in the Bibliographic Record

Any one need to get complete bibliographic description should follow the steps: Select OPAC icon on the central library link → Choose search option Book/Theses → Enter subject into the search box → Choose keywords from dropdown menu → then click on Go menu or press enter key → Click on the hyperlink provided with title in the list. Bibliographic details are available in tabular format and labeled as title, author, keywords, etc. (figure 24).

In case of advance search, only two fields can be searched at a time combining two Boolean operators AND, and OR.

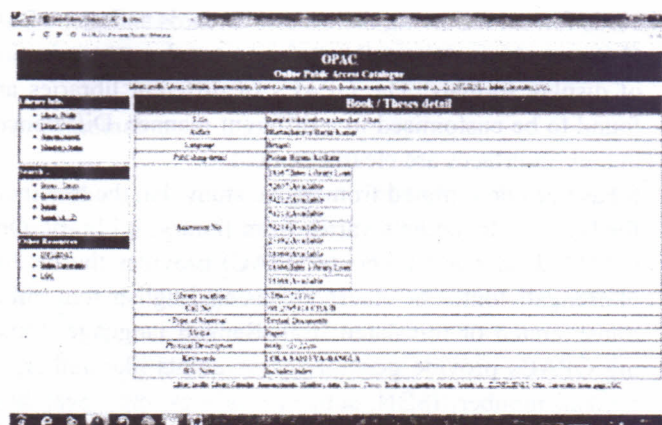


Figure 24: Bibliographic Record Full Labelled Display in Vidyasagar University OPAC

Figure 24 shows the results of a record details search by the title 'bangle lok sahitya charchar itihash' authored by Barun Chakrabarty, where subject heading appears as "LOKA SAHITYA-BANGLA". Record details interface consists of labelled bibliographic data like Title, Author, Publishing details, Accession number, Library location, Call number, Type of material, Media, Physical description, Keywords and Bibliographical note. The display shows corresponding data output against each of the aforesaid bibliographic fields in the appropriate box. However, no hyperlink is provided therein bibliographical entry to retrieve all resource on a given subject, such as, "LOKA SAHITYA-BANGLA".

4.4.4 Merits of the System

- Web OPAC offers effective searching options by different access points like, accession number, author, class number, corporate body, ISBN, keywords, publisher, series, title, etc.
- It offers basic search facility which facilitates to enter a search with any word or phrase in a specific field of user's choice from the drop-down menu; advanced search; and multi-field search.
- Keyword searching retrieves and displays items if the search term appears anywhere, in any fields linked to the selected indexes. The search is possible in two ways: (a) simple keyword search; and (b) advanced keyword search.
- OPAC is accessible around the clock 24×7, all over the world.

4.4.5 Demerits of the System

- It is not possible to limit the search by date, material type, language or location.
- There is no option to review the results of previous searches and subsequently to combine them to generate new searches.
- No facility of browsing through a default screen which displays lists of terms from the selected index (title, author, subject, etc.), alphabetically closest to the entered search term and in alphabetical order is there.
- No facility is given to the users to enter their search requirements in natural language.
- There is no facility to retrieve multimedia documents.
- Inconsistency is found in assigning subject headings.
- There is no provision for customized display of bibliographic records.

5 Comparison of the Functionalities of OPACs

Table 2 shows the comparative performances of the OPACs in retrieval of Bengali documents by subject.

Table 2: Comparative Performance of OPACs in Retrieval of Bengali Documents by Subject
(Performance Scores Calculated in Terms of Binary Code, i.e. 0 and 1)

Functionalities of OPACs	CU	JU	KU	VU
University Web OPACs	1	1	0	1
Offers searches:				
(a) Basic search	1	1	1	1
(b) Advanced search	1	1	1	1
Search capability on conventional access points:				
(a) Title	1	1	1	1
(b) Keyword anywhere	0	1	1	1
(c) Keywords using AND, OR, NOT	1	1	1	0
(d) Publisher's name	1	1	1	1
(e) Place of publication	1	1	1	1
(f) Date of publication	0	0	1	0
(g) Series	1	1	1	1
(h) Author or editor or corporate body	1	1	1	1
(i) Subject	1	1	1	1
(j) Class number (or call number)	1	1	1	1
(k) ISBN/ISSN	1	1	1	0
(l) Theses	0	0	1	0
(m) Notes	0	1	1	0
(n) Abstract	0	0	1	0

Provision for log-on/user password	0	0	1	0
Availability of time out features	0	1	0	0
Provision for Boolean search	1	1	1	1
Provision for truncation search	1	1	1	1
Provision for exact matching	1	1	1	1
Provision for phrase searching	0	1	1	0
Use of word proximity operators	1	1	1	0
Hypertext links in the full bibliographic record display:	0	1	0	0
(a) Authors/Main entry	0	1	0	0
(b) Title	0	1	0	0
(b) Subject	0	0	0	0
(c) Call number	0	0	0	0
(d) Series	0	0	0	0
(e) Location map	0	0	0	0
Provision for field directed searching	1	1	1	1
Provision for browsing capabilities:	0	1	1	0
(a) Browsing by author	0	1	1	0
(b) Browsing by subject	0	1	1	0
(c) Browsing by series	0	1	1	0
(d) Browsing by publisher	0	1	1	0
(e) Browsing by call number	0	1	1	0
(f) Browsing for a new title	0	1	0	0
(g) Browsing by type	0	1	1	0
(h) Browsing by title	0	1	1	0
Multimedia searching	0	0	0	0
The user can start a search anywhere	1	1	0	1
The user can select return to reach a previous screen and change a selection	1	1	1	0
Search option for new arrivals	0	1	1	0
Linguistic capabilities:	0	0	0	0
(a) Language translation	0	0	0	0
(b) Bi-lingual support	0	1	0	0
(c) Transliterated entry (Bengali to English)	0	0	1	1
(d) Bengali font support	0	1	0	0
Related items	0	0	0	0
Provision for single search interface	1	1	1	1
Provision for customising display format	0	1	0	0
Provision for a visual map	0	0	0	0
Thesaurus search	0	0	0	0
Total score	20	39	34	18

Note: CU=University of Calcutta, JU=Jadavpur University, KU=University of Kalyani, and VU=Vidyasagar University

It is revealed that existing OPACs have the basic search as well as advanced search facilities. No OPAC has a log-on and password facility, but one of them has the time out feature for searching. All of them have the bibliographic re-

ords format following their own standards and one OPAC (Jadavpur University OPAC) facilitates the customisation of display formats. The OPACs of different libraries are found to be customised in a different manner. Differences in their interfaces are clearly evident.

It has been determined from above study that the treatment for Bengali documents varies from library to library. One OPAC (Jadavpur University OPAC) provides the facility of Bengali font, but others are using English font either transliterated or translated from Bengali language. Existing OPACs provide general access points like author, title, call number, ISBN, subject headings, etc. Searching options normally facilitate phrase search or string search. Advanced search option using Boolean operators enables users to combine search terms to avoid redundancy in information retrieval. Keyword search is another option for unknown document retrieval. Users can enter one or more than one keywords. The OPAC retrieve all documents that contain the keyword(s).

Providing subject access points for retrieval of documents are most common features of OPAC environment. It enables user subject search or browse subject headings. However, it has been found that assignment of subject headings for Bengali documents varies from library to library, and even sometimes subject headings assigned to the same documents differ in the same library OPAC.

All the OPACs primarily display a brief bibliographic record of a desired item in first appearance, and then provide the option to get detailed bibliographic information about the same. However, none of them facilitates cross reference search or related items search option.

It has been revealed from the findings drawn above in sec(t). 4.2 of this chapter, that Jadavpur University Web-OPAC has only used Bengali subject headings thoroughly. However, the rest of the OPACs have assigned English transliteration or translation of the Bengali subject headings for Bengali documents. Although with respect to other features and functionalities, some differences have been noted. However, they have no significant implications for retrieval of Bengali documents by subject. Table 2, furnished above, shows the comparative performances of the OPACs in retrieval of Bengali documents by subject. The performance of the Jadavpur University OPAC in this regard is highest scoring a total of 39, followed by the Kalyani University OPAC scoring a total of 34, Calcutta University OPAC is scoring a total of 20, and Vidyasagar University OPAC is scoring a total of 18 only. It may be worth noting here that among the universities Jadavpur University OPAC has only provided Bengali font as well as bi-lingual support. This

may lead Jadavpur University to get top performance in retrieval of Bengali documents by subject.

6 Conclusion

The above deliberations give some idea of the characteristics, features and functionalities of OPACs with respect to retrieval of Bengali documents by subject. It has determined and identified that the performance and failure of the OPACs in terms of retrieval of Bengali documents by subject significantly depend on the use of standard subject headings in Bengali as well as Bengali font support. Retrieval of Bengali documents by subject in OPACs may be improved by using standard Bengali controlled vocabulary for the Bengali documents, as existing practices do not maintain uniformity, consistency, accuracy and specificity of subject headings. Besides, it has been found that the Bengali subject headings can completely be amenable for OPACs. It is worth mentioning that the Jadavpur University has achieved highest performance score in retrieval of Bengali documents by subject using Bengali subject headings. Finally, the scope for multilingual retrieval capability in the software for the OPACs needs to be utilized fully for retrieval of Bengali documents by subject. Besides, implementation of cluster subject browsing facility in OPACs may overcome the complexity of subject searching. Customised display format and uniform labeling of the fields are to be considered as pre-requisites for optimal use of the OPACs. The user interfaces of OPACs need to be integrated with federated search facilities for providing better search options to the users.

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Annexure

Schedule for Study of Performances of Online Public Access Catalogues

The study seeks to investigate the functionalities of Online Public Access Catalogues (OPACs) in retrieval of Bengali documents by subject.

1. Name of the University
2. Address.....
3. Web site.....
4. Date.....
5. Library Management Software used.....
6. Access facility (Web OPAC or OPAC).....
7. If not Web-based, the mode of access to the OPAC.....
8. Offers types of searches:
- a. Basic search.....
- b. Advanced search
9. Full search capability on conventional access points:
- a. Title
- b. Keyword anywhere
- c. Keyword (using and, or, not)
- d. Name of the publisher
- e. Place of publication.....
- f. Date of publication.....
- g. Series
- h. Author or editor or organization.....
- i. Subject.....
- j. Class number (or call number).....
- K. ISBN/ISSN
- l. Theses.....
- m. Notes.....
- n. Abstract
10. Provision for log-on/user password
11. Has time out features.....

12. Provision for Boolean search
13. Provision for truncation
14. Provision for exact matching
15. Provision for phrase searching
16. Word proximity operators
17. Hypertext links in the full bibliographic record display:
 - a. Author
 - b. Subject
 - c. Call number
 - d. Series
 - e. Location map
18. Provision for field directed searching
19. Provision of browsing capabilities:
 - a. Browsing by authors
 - b. Browsing by series
 - c. Browsing by publishers
 - d. Browsing by call number
 - e. Browsing for new titles
 - f. Browsing by type
 - g. Browsing by title
20. Multimedia searching
21. Whether the user can start a search anywhere
22. Whether the user can select return to a previous screen
and change a selection
23. Search for new items
24. Linguistic capabilities:
 - a. Language translation
 - b. Multilingual support
 - c. Transliterate support
 - d. Bengali font support
25. Related items
26. Provision for single search interface
27. Provision for customise the display formats
28. Provision for a visual map
29. Thesaurus search
30. Remarks