A Comparative Study Of Library Web Opacs Developed Using Different Ilms: Libsys, Koha And E-Granthalya

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ABSTRACT-

Libraries are service oriented agencies and proactively engaged for the last hundreds of years in the providing information to the clientele using information retrieval tools. ICT, and ICT-related tools which are now used in libraries for providing services to users. The implementation of the ILMS is a major milestone in the library development process, as it led to variety of changes in the way of processes and techniques of libraries and information centers. The major change it has brought is the replacement of the traditional library catalogue with the Library Web OPAC. It is observed that the development of Library Web OPACs using various library software have different designs and features, therefore this study is conducted to find out the strengths and also the lacunas of Web OPACs developed using different library softwares. The present paper is a comparative study of the Web OPACs developed using open source, freeware, and commercial library software's; like the Koha, e-Granthalaya, and the LibSys software. The basic purpose of this paper is to find out the strengths and the developmental areas of the WEB OPAC of "e-granthalaya" Compared with Koha and LibSys web OPAC. For this evaluative study, researchers compiled a comprehensive checklist in order to evaluate the features, functions, and facilities of the web OPACs developed using library software under the study. The findings of the study showed their uniqueness among Web OAPCs; further observed different terminologies and utilities used in Web OPACs under study and requirement of the advanced features in the Web OPAC developed using e-Granthalaya. The paper concluded that Web OPAC of e-Granthalaya has the scope to add new features and functions to increase their usage and improve their functionality.

Keywords: card catalogue, opac, web-opac, online catalogue, koha, libsys, e-granthalaya, evaluation of softwares

INTRODUCTION

Modern technology has a tremendous impact on libraries, particularly on information accessibility and delivery. The technical changes and the explosion of information are witnessed remarkably in the libraries through the auto transactions using the RFIDs and barcode scanners, library services including the online SDI and CAS, use of online web tools such as Library Web sites, Library Blogs, WhatsApp for channelizing the library marketing and user communication and the replacement of card

catalogue by an online open public access catalogue known as Web-OPAC. With the rapid advancement of modern information technology and increased library automation, most of the libraries migrated from the traditional card catalogue to the automated Online Public Access Catalogue (Web-OPAC). OPACs were introduced in the US in the late 1970s and in the UK in the early 1980s. In India, libraries have adopted mostly OPACs that are designed and developed in-house (Rajput, Naidu, & Jadon, 2008). Chintha described, the concept of Web OPAC in developed countries like USA and UK is very well established and effectively practiced (Chintha, 2013). In the Studies of Zainal and Hussin (2013) and Husain and Ansari (2006) enumerated the following features of OPAC:

- The tool Web OPAC is accessible from any part of the globe via the Internet.
- It has Graphical User Interface (GUI) which provides icons, drop-down menus, and a pointing device such as a mouse to browse the required material.
- It has the facility of multiple access points to browse the desired document.
- A link facility to the full text.
- One can save the search history of the Web OPAC.
- Web OPAC have the facility to view the result in different display format.

REVIEW OF LITERATURE

The literature reviewed to find out the studies conducted on the features and functions of Web OPACs. The Studies of Babu and O'Brien (2000), Hussain and Ansari (2006) Harmsen (2000), and Kapoor and Goyal (2007) highlighted remarkable features of Web OPACs like exact searching, Boolean operator, search limits, external links, session filters, etc. It is perceived that the majority of the users are facing difficulties while accessing Web OPACs. These problems are mainly relevant to the system and very few are relevant to users' inadequate knowledge of searching. The studies of Thanuskodi (2012), Chintha (2013), and Fabunmi and Asubiojo (2013) indicated that the design and interface of Web OPACs continuously improved, still, many researchers such as Ansari and Amita (2008), and Ahmad (2014) have pointed out that majority of the users facing problems while accessing the Web OPAC due to unawareness and lack of available features. The remarkable studies have made few recommendations such as the need for a user manual, hands-on sessions, library orientation, training, instructional guides, search tips, etc., to solve the difficulties faced by the users while accessing the Web OPAC (Kock, 1993), (Oduwole, Oyesiku, & Labulo, 2002), (Lombardo & Condic, 2000), (Mulla & Chandrashekara, 2009). The study of Umarani, Nagarkar & Jagtap (2008) detected that users have less or no computer literacy and hence needed personal help from library staff. Connaway (1997) and Allen (2002) have proposed few improvements in their study to make Web OPACs more interactive, functional, and user-friendly.

In Web-based evaluation, available attributes and features of the Web OPAC are checked with advanced and well-known Web OPAC in order to identify the lacunas in the existing system. The remarkable study conducted by Mahmood (2008) evaluated the features such as access points, search types, display formats, result conversion, etc., based on the specially designed checklist. The researcher highlighted the absence of essential features such as MARC format and Z39.50 protocol in Web OPACs under study. In another checklist-based study, researchers found that federated search, faceted navigation, word cloud, and thesaurus search

facilities were not available in their OPACs. (Kumar & Vohra, 2011) Kumar and Bansal devised a checklist to evaluate the OPACs. (Kumar & Bansal, 2012)

OBJECTIVES OF THE STUDY

Library software is necessary to perform all the activities or housekeeping operations of the library. Web OPAC is an effective information retrieval tool to browse library resources. The Directorate of Libraries, Maharashtra State explored e-Granthalaya library software to automate their 43 government libraries. All the registered users of 43 Government libraries browse Web OPACs regularly to search the desired document from cluster collection. Therefore, it is necessary to make Web OPAC more functional by eliminating the lacunas and adding advanced features by comparing with widely used Web OPACs. The evaluation of Web OPAC at regular intervals helps in understanding the availability of features and facilities in existing Web OPAC and comparing them with well-known Web OPACs. The present usability testing study will help to improve the functionality of Web OPAC to make it more users friendly.

The present study aimed to achieve the following objectives:

- Selection of ILMS for the study of web OPAC
- To know the availability of features and functions in present Web OAPCs developed using ILMS
- To conduct comparative study of the Web OPACs of selected libraries
- To compare and discuss the available features of Web OPACs under Study.
- To suggest suitable measures to improve the functionality of the e-Granthalaya Web OPAC.

SCOPE AND LIMITATIONS OF THE STUDY

There are many library automation software in the field of library and information science, such as LibSys, Koha, LibSuite, SLIM21, NewGenLib, e-Granthalya, SOUL, etc. these are basically categorized as follows:

Commercial library Software: LibSys, LibSuite, SLIM21, LIBMAN, etc.

Open-Source Library Software: NewGenLib, Koha etc.

Software developed by Government: e-Granthalaya (NIC), SOUL (INFLIBNET) etc.

Selection of the Library software

The researchers have selected one representative software from every group, for evaluation of Web OPAC. LibSys is the old and popular commercial software whereas Koha is an open-source library software is widely used across the world. The Directorate of Libraries, Maharashtra State is using cloud-based e-Granthalaya provided by National Informatics Center (NIC). The present study has covered the evaluation of features, functions, and facilities of three Web OPACs developed using these three ILMS under study and is limited to the following library Web OAPCs:

- Web OPAC of LibSys (Jaykar Knowledge Resource Center, SPPU, Pune)
- Web OPAC of Koha (University Library, Mysore University, Mysore)
- Web OPAC of e-Granthalya (Directorate of Libraries, Maharashtra State, Mumbai)

METHODOLOGY

The present study is an evaluation survey of WEB OPAC developed using three ILMS

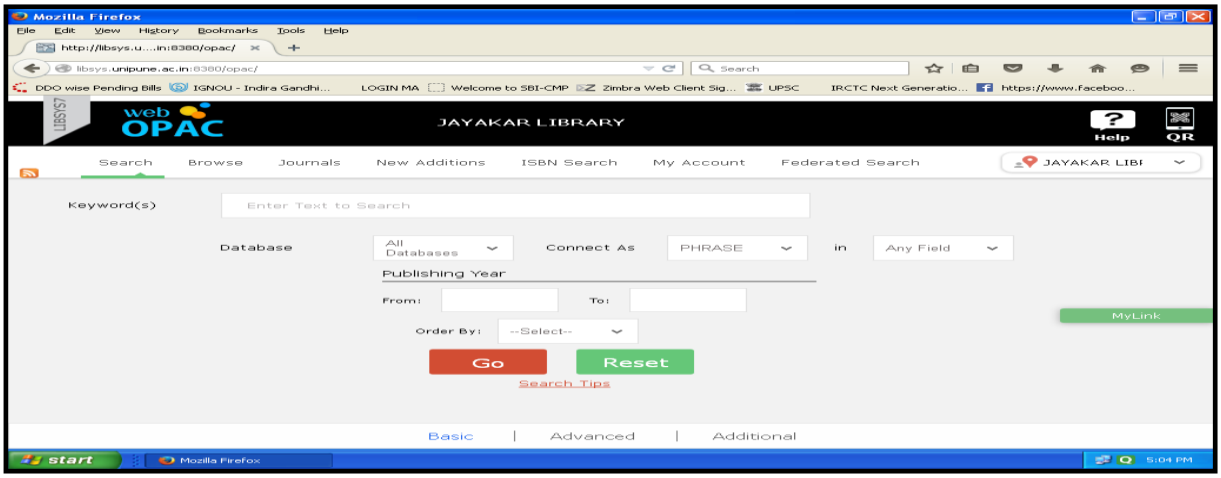

Figure 1: Home page of Jaykar Library Web OPAC, SPPU
http://libsys.unipune.ac.in:8380/opac/

softwraes. The evaluation comprises content-based evaluation of Web OPACs through a checklist to evaluate features and functions. Researchers have designed a checklist prepared based on the preliminary studies conducted before the present study, thus the essential changes incorporated to make the final checklist with a justifiable scope. Thus checklist used in the present study is covering all the features and functions of Web OPAC.

ANALYSIS AND INTERPRETATION OF DATA

A. Based on OPAC Design

The interface designs of three Web OPACs were studied. Following screen shot shows the interface design screens of LibSys, Koha and e-Granthalya Web OPACs.

The Web-OPAC design of LibSys, shows that along with all regular search types i.e. browse, basic and advanced search, other search options like ISBN search, additional search and federated search facilities are clearly apparent on the screen of Web OPAC of Jaykar Knowledge Resource Center, SPPU. The quick response (QR) code facility is also visible on the screen to access the Web OAPC from smart and mobile phones with cameras. There are total 10 attributes available on the home screen of Web OPAC of Jayakar Library SPPU.

The Interface of Koha Web OPAC shows basic search as default search. The other searches such as advanced search, tag cloud, most popular and libraries options given on home screen. The quick links to e-resources are made available so user accesses it. The remarkable features such as mobile view also provided so user can open the catalogue on their android mobile. The facility to browse entire collection by subject and by special collection is given on home page of the Web OPAC. There are 12 attributes available on home screen of Web OPAC, which may lead to make chaos in the mind of end user. The advanced QR code facility is not available on home screen to access Web OPAC and email through Android devices. On the home screen of Web OPAC, the number of active users and hits is shown to know the utilization status.

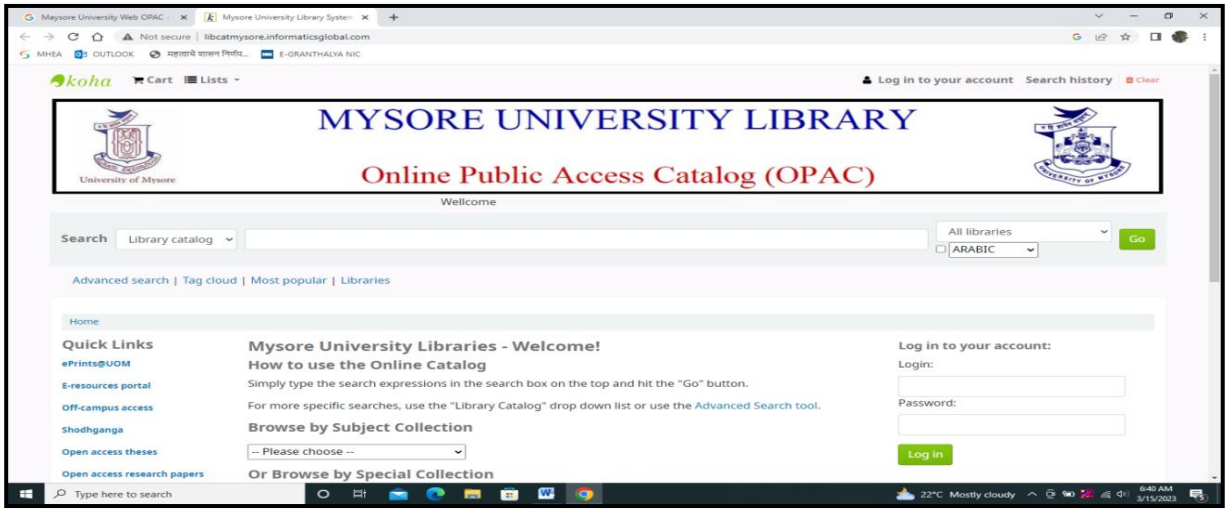

Figure 2: Interface of Mysore University Library Web OPAC, KOHA
http://libcatmysore.informaticsglobal.com/

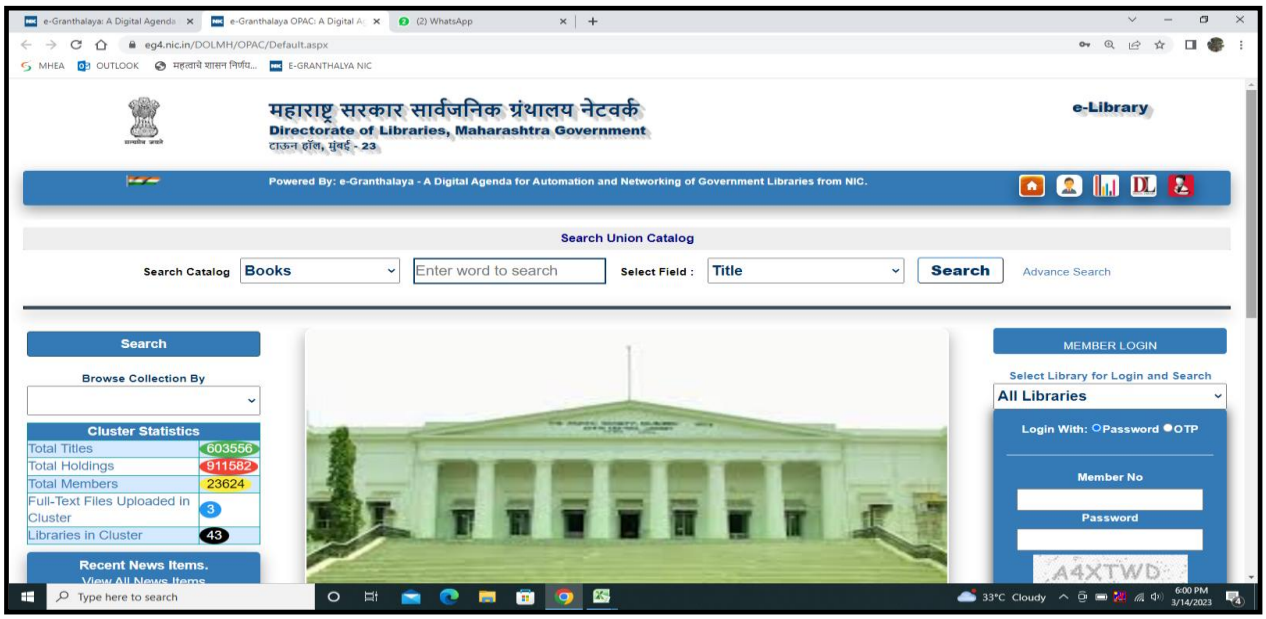

Figure 1: Interface of Directorate of Libraries, Maharashtra State, Mumbai, Web OPAC
https://eg4.nic.in/DOLMH/OPAC/Default.aspx

It is found that browse, basic and advanced search facility is apparent on home screen of the e-Granthalaya Web OPAC. The cluster statistics are highlighted on the home screen of web OPAC. The facility to select the individual library from cluster and see the search the holding of particular library is given. The links to union catalogue of NIC and digital library are also provided on home page of the Web

OPAC. The dashboard in a Web OAPC shows the holding of the member libraries in graphical manner. There are only 08 attributes available on home page of Web OPAC, which shows the interface is active and user-friendly. The facility such as registration to guests is given on Web OPAC.

Table 1: Attributes Availability

Sr. No.	Attributes on Home Screen/ Interface	LibSys	Koha	e-Granthalaya
a	Basic Search	√	√	√
b	Advanced Search		√	√
c	Browse Collection	√	√	√
d	Federated Search	√		
e	Tag Cloud		√	
f	Most Popular		√	
g	Member Login/ My Account	√		√
h	Guest Registration			√
i	Select Library from Cluster	√		√
j	Cluster Statistics/ Holdings	√		√
k	View Dashboard			√
l	New Additions	√		
m	Search Tips	√		
n	Helps	√		
o	ISBN Search, Accession Search	√		
p	Search History		√	
q	Clear		√	
r	Cart		√	
s	View List, Create your List		√	
t	Quick Links		√	
u	No of Hits		√	
v	View Catalogue on Mobile		√	

B. Data Analysis: Content Based

The checklist-based evaluation of three web OPACs for the contents revealed the following information in table no. 1 to 11.

DISCUSSION

Attributes Available on Home Page of Web OAPCs

The interface of any system should be simple and user friendly so user could perform searching without any difficulty. The table no. 1 revealed that the home screen of all Web OPACs contained nearly 8 to 12 attributes. The Web OPAC of Koha contained higher number of attributes which is 12, followed by 10 attributes in LibSys Web OPAC whereas eight (8) attributes are available on Web OPAC of e-Granthalaya. The Web OPAC of Koha provides advanced attributes on their home screen such as search history, view catalogue on mobile mode, tag cloud, quick link etc. Whereas the guest registration view and clustered dashboard attributes found on home screen of e-Granthalya Web OPAC. User assistance like search tips and helps are available on the home screen of LibSys Web OPAC. The federated search is only available on the home screen of LibSys Web OAPC. Therefore, unique and essential attributes should make available on the home screen.

Search Types

The table no. 2 illustrated that all the three Web OPACs under study contained basic search, advanced search and Boolean search whereas browse search facility is available in Web

Table 2: Search Types Availability

Sr. No.	Types of Search	LibSys	Koha	e-Granthalaya
a	Browse	√	√	
b	Simple/Basic Search	√	√	√
c	Advanced Search	√	√	√
d	Additional Search	√		
e	Federated Search	√		
f	Free text Search			
g	Boolean Search	√	√	√
h	Federated Search	√		
i	Search within Search		√	

Table 3: Access Points Availability

Sr. No.	Access Points	LibSys	Koha	e-Granthalaya
a	Title /	√	√	√
b	Keyword			√
c	Author / Creator/ Contributors	√	√	√
d	Subject	√	√	√
e	Publisher	√		√
f	Call Number/Classified Search	√	√	
g	Place	√		
h	Series	√	√	
i	ISBN/ISSN	√	√	√
j	Tags			√
k	All search			√
l	Catalogue Record Number			√
m	Accession Number	√		√
n	New Addition	√		
o	Conference Name, Meeting Name, Note/ Abstract, Year of Publication, Volume Title, Volume Editors, Academic Level	√		√

OPACs of Koha and LibSys. Only Web OPAC of e-Granthalaya provided basic search and advanced search whereas search within search is the much essential facility available in Koha Web OPAC. The Web OPAC of e-Granthalya contained only three search types. Hence, there is a need to customize popular search type like federated search, search within search etc. and free text search facility like google in e-Granthalaya software.

Availability of Access Points

Access points are necessary aspect for searching of Web OPAC through which one can search the required document from the library collection. The table no 3 indicates that

Table 4: Availability of Limit Options

Sr. No.	Limit Options	LibSys	Koha	e-Granthalaya
a	Document type / Collection / Item type	√	√	√
b	Language	√	√	
c	Publication Year/ Publication Year Range	√	√	
d	Database, Location and Availability	√	√	
e	Accession Dates, Accession Numbers, Items with media link,		√	
f	Audience		√	
g	Content/ Additional Content Type		√	

Table 5: Availability of Result Fields

Sr. No.	Fields shown in Result	LibSys	Koha	e-Granthalaya
a	Author / Author + Creator	√	√	√
b	Title	√	√	√
c	Publication details	√	√	√
d	Availability Status	√	√	√
e	Accession Number	√	√	√
f	Image of the title (if available)	√	√	√
g	Call Number	√	√	√
h	ISBN, Type, Series,		√	√
i	Number of Copies			√
j	Holding Status			√
k	Online Access		√	
l	Edition		√	
m	Library Location where Available		√	
n	Literary Form		√	

the basic access points like author, title, subject and ISBN available in all Web OPACs under study whereas keyword search facility is available in LibSys Web OAPC. LibSys and e-Granthalaya both provided nearly 11 access points in Web OAPC whereas Koha Web OPAC contained only six (6) access points. In Koha it is observed that keyword searching is missing element which is very important.

Available Limit Options in Web OPAC

Limit options are used to restrict and retrieve the pertinent results related to the search query. It is found from table no 4 that Koha have majority (7) limit options to retrieve the more specific result whereas e-Granthalaya contained only one limit option that is document type. It is also noted that different terminologies for limit options such as document type, collection, item type etc. used in all Web OPACs under study. The limit options criteria like language and 'database and location' and 'availability' are available in LibSys and Koha Web OPACs. The essential features such as language and publication year range are missing in e-Granthalaya; Web OPAC hence needs to be customized so it will make Web OPAC more functional.

Table 6: Availability of Display Formats

Sr. No.	Result Display Format	LibSys	Koha	e-Granthalaya
a	MARC / MARC View		√	√
b	ISBD, Linear View	√	√	
c	Normal View		√	
d	Brief View			√
e	Full View			√

Table 7: Available Options in Web OPACs

Sr. No.	Available Options in Web OPACs	LibSys	Koha	e-Granthalaya
a	Print	√	√	
b	Export		√	
c	Add to Cart	√	√	
d	Place hold		√	
e	Share to email, Linkedln, twitter, Facebook etc.		√	
f	Suggest for Purchase		√	√

Available Fields shown in Displayed Result

The data filed is much needed to show the retrieved result in Web OPAC in systematic manner in its field display format. Popular data fields such as title, author, publication, accession number, image of document, call number are essential fields available in all Web OPACs under study. The remarkable data fields such as literary form and online access only available in Koha. It is also devised from the table no 5 that Koha open source software provides number of data fields compare to commercial software and government developed software. The data field availability of the document is also available in all Web OPACs which is essential because the purpose of interacting Web OPAC is to check the availability of documents in library.

Available Result Display Formats in Web OPACs

The retrieved result is displayed in various formats in Web OPAC. The table no. 6 illustrates that only LibSys Web OPAC exhibits result only in Linear and ISBD standard display format. Koha displayed their result in MARC, ISBD and Normal View whereas e-Granthalya displayed result in Brief View, Full View and MARC view etc. It is noticed that none of the Web OPACs display their result in all standard display format such as MARC, AACRII, and ISBD. Moreover, the developer of e-Granthalaya should customize standard display format in their Web OPAC.

Available Options in Web OPACs

The result conversion feature is useful to save or print the retrieved result for further use or reference. It observed that the table no. 7 that Koha contained number of options such as print, export, add to cart, place hold, suggestion for purchase and sharing result with social media in their Web OPAC. In Web OPAC of LibSys print and add to cart result conversion options are made available. The e-Granthalaya Web OPAC has none of the option facility but

user can make request to purchase the retrieved document. Therefore, e-Granthalaya should made available facility to share result with RSS feed, twitter and Facebook etc., along with traditional options such as print, export and add to cart.

Sorting Options in Web OPACs

The sorting features are helpful to sort the retrieved result as per basic access point-wise in ascending or descending order. The common result sorting options such as author and publications date are available in all Web OPACs under study whereas result arranged by sorting title and call number is possible in Web OPAC of LibSys and Koha. Sorting of serach result option to be added in e-granthalaya.

User Assistance in Web OAPCs

User assistance requires guiding the end user toward the effective use of Web OPAC. The user assistance or instructional facilities such as help desk, tutorials, ask us and search tips are essential to increase the usage of the Web OPAC. It is found that only LibSys Web OPAC has a Help and Search tips facility for user assistance whereas Koha and e-Granthalya don't have any user assistance or instructional facilities. To make Web OPAC more functional customization of help desks, search tips, tutorials, and ask-us instructional facilities are necessity in e-Granthalaya.

Advanced/ Additional Features in a Web OPACs

Along with basic features, modern Web OPAC came up with some advanced features that are helpful for functional improvement. It is found that the advanced features such as QR code, links to twitter, Facebook, and Linkedln, view dashboard, access to online resources, add tags and highlight keyword are available only in Web OPAC of Koha. whereas LibSys Web OPACs have very few number of features. The facilities such as display recent news and view cluster dashboard are available in e-Granthalaya Web OPAC. The advanced feature such as Mobile OPAC is essential as users can access Web OPAC through their smart phone and android mobile. The e-Granthalaya Web OAPC provided new request facility through which users can send requisition to procure new document. It is further observed that, the present Web OPACs customized some advanced features to make Web OPACs more powerful and effective information retrieval tool of the library.

Visitor Statistics in Web OPACs

Visitor statistics describes the number of users visited to Web OPAC so for which is counted in term number of hits. The success of any Web OPAC depends on higher number of hits and their information requirement fulfilment. It seems from the table no. 11 that only Koha have facility to know the number of hits whereas none of the Web OPACs have facility to know active member.

FINDINGS AND CONCLUSION

The Web OPAC of open source software provided higher number of facilities as compare to other Web OPACs under study.

It is devised that guest registration view and clustered dashboard facilities are found on home screen of e-Granthalya Web OPAC.

It is noticed that user assistance like search tips and helps available on home screen of LibSys Web OPAC.

The remarkable facility that is 'search within search' is the much essential facility available in Koha Web OPAC which works like Amazon or flipkart.

The basic access points like author, title, subject and ISBN available in all Web OPACs under study.

The essential features such as language and publication year range are missing in e-Granthalaya Web OPAC.

Koha open source software provides higher number of data fields compare to commercial software and government developed software.

The e-Granthalaya Web OPAC has none of the result conversion facility but user can make request to purchase the retrieved document.

It is found from the discussion that only LibSys Web OPAC has Help and Search tips (User Manaual online) facility for user assistance whereas Koha and e-Granthalya doesn't have any user assistance or instructional facilities.

The advanced features such as QR code, links to twitter, Facebook and Linkedln, view dashboard, access to online resources, add tags and highlight keyword are available only in Web OPAC of Koha

Suggestions

The library software developer should provide free text, browse, basic and advanced search utilities.

The unique and simple terminology should be used for common features so ambiguity may not be created in the mind of end user.

The essential attributes should be customized in Web OPAC so user can easily browse Web OPAC.

The facility of auto spell check is required to avoid the typing errors while inserting any search query because it leads to result failure and misleading.

The sharing of results on WhatsApp / Social media is required.

The virtual instructional module (User Manual Online) is required in Web OPAC to increase the functionality of the Web OPAC.

All Web OPACs should display their result in standard display formats such as MARC, AACRII, and ISBD as well as full view and brief view or user needed format.

The advanced features such as QR code, links to twitter, Facebook and Linkedln are essential in Web OPAC.

Library Web OPAC is a crucial tool to retrieve required information or documents from the library or groups of the libraries. Therefore, the present study is conducted to compare the Web OPACs of the e-Granthalaya library software with the LIBSYS and Koha in order to map the areas of added features and facilities in e-Granthalaya. The study indicates the lack of the features used in the Web OPACs of these Library software. The study found that none of the Web OPACs have all the features and facilities listed in the evaluation checklist. However, many features are available in KOHA open source ILMS. The study recommends to use essential features on screen of web OPACs, helping in making the interface simpler and user friendly for channelising the effective and efficient usage from all the users.

The present work is a checklist based evaluation of Web OPAC, where the availability of the features in existing Web OPAC is checked and verified. In order to make Web OPAC more powerful and functional user based usability testing of the Web OPAC is required. It is further suggested that there are chances to improve the e-Granthalaya software by adding missing utilities for better information retrieval from WEB-OPAC.

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