RESEARCH ARTICLE

AWARENESS AND ADOPTION OF KOHA (OSS) AMONG LIBRARY PROFESSIONALS IN ERNAKULAM

*Jisna Jose

Librarian, Vimala College, Thrissur-9

ARTICLE INFO	ABSTRACT
	Library automation enhances the speed, accuracy, productivity and efficiency of library staff and services. Adoption and use of open source library management system in libraries leads to tremendous changes in library functions and services. Koha is the first popular free and international open source library management software. This study is relevant in this modern age to motivate the library professionals for migrating to Koha without any misconceptions regarding open source software. It facilitates the wider dissemination of information efficiently and effectively by improving the management and organization of library resources.

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INTRODUCTION

Information technology has transformed the whole world into a global village. Exponential growth of knowledge and information made human technology development and libraries are not an exception to it. It is imperative to implement use of certain technology driven software to distribute and manage vast information resources in the libraries. Twentieth century contributed the emergence of information communication technology (ICT) and their applications in libraries. To meet the requirements of today, ICT is playing a vital role. Today information seekers can get required information very quickly just in one click through World Wide Web. ICT can play a significant role for libraries in modifying their services, structure, and housekeeping operations. Library automation has become must in the changing world scenario. 20th century saw the emergence of ICTs and their use in the libraries. Application of the computers has led to the changed services and sources in the libraries. To provide services to their vendors quickly and efficiently librarians resorted to library automation. Currently library management software are integrated systems based on relational database approach, in which system files are integrated in such a way that any change in a single file can appropriate change in the related files. These software, being developed by the vendors were very costly and incur a huge sum of their finance and also make them vendor depended for any rectification. This led the professionals to think differently and the product was the open source software. According to free software foundation (FSF) in open source software (OSS), the users should have freedom to run copy, distribute and study, change and improve the software. The open source initiative (OSI) identified ten criteria for a software product to called open source. Open source softwares because of its free access and good level of functionality are being used heavily as an alternative to commercial softwares. The availability of source code in open source softwares gives power to users to modify and make any changes or improvements to it, and such contributions can come from a community of programmers having different talents pools. Koha is a promising full featured open source integrated library system (ILS) created in 1999 by Katipo Communications for the Horowhenua Library Trust in New Zealand, and currently being used by hundreds of libraries all over the world. It includes modules for circulation, cataloging, acquisitions, serials, reserves, patron management, branch relationships, and more. Koha has web-based interfaces.Koha is built using library ILS standards and uses the OPAC (Online public access catalog) interface. In addition, Koha has no vendor-lock in, so libraries can receive technical support from any party from they want. It is distributed under the free open source general public license (GPL). It supports MARC 21 and UNIMARC support, Z39.50. It also has a provision for online reservations and renewals; there are several OSS available in the market for the development of libraries and open source software for other commercial use.

*Corresponding author: Jisna Jose,
Librarian, Vimala College, Thrissur-9.

Objectives of the Study

- To find out the level of awareness about Koha among library professionals working in Ernakulum District.
- To ascertain the source of motivation for the implementation of Koha.
- To study the utility of Koha with its special features to increase the efficiency of library services.
- To explore the difficulties faced by library professionals while implementing and using Koha.
- To investigate the satisfaction level of library professionals on Koha.

METHODOLOGY

The study adopted the methods of questionnaire, observation and interviews with the library professionals. The structured questionnaire was prepared and distributed to library professionals those who are working in the libraries which adopted Koha and also participated in Koha community. Koha community is a community or consortia of Koha users for technical support to each other. This study is conducted among the Libraries in Ernakulum district those are participated in Koha community. The questionnaire includes both open ended and closed ended questions. The questions were formulated in accordance with the objectives. This study is analyses and interpreted by the application of statistical data and its graphical representation with bar diagram, pie chart, etc.

Scope of the study

The study focuses on a descriptive study on usability of Koha among Library Professionals. This study aims to motivate the other libraries and library professionals for providing excellent library services by the advanced features of Koha. It also leads to improve the confidence and courage among library professionals to implement the advanced open source software Koha and to create an efficient digital environment in new generation libraries. The study also tries to investigate the effectiveness of Koha with its advantages and disadvantages.

Review of Literature

Free and Open Source Software (FOSS) has major role in managing information and knowledge all over the world. There are many FOSS for library automation too. Time has come for LIS professionals to adopt FOSS over the proprietary ones benefiting on various counts, mainly cost effectiveness and the availability of source code. Lack of technical knowledge and skills among library professionals are some of the major hurdles in adopting Open Source Integrated Library System (OSILS). (Gireesh Kumar, 2015). Koha is web-based open source ILS first released in 1999. It facilitates access from a computer having web browser and connected to the network. Koha supports consortia, multi -branch or single-branch libraries on cloud technology. In India, most libraries are implementing Koha with the paid support of providers for services.

There are ten such providers listed on Koha Community web site.(Tyagi, 2015). Indian libraries have recognized the capabilities of Koha features and its suitability to implement in any type of libraries. To a certain extent, availability of Koha Live CD is a factor behind the popularity of Koha in India. About 40% of libraries installed Koha using Live CD. Koha users (61.76%) are satisfied with the overall performance of Koha. Circulation module is the most favorite module of Koha and 51.72% of users have expressed excellence about the performance of this module. Availability of community support, learning tools, library standards and active development has helped Koha Open Source ILS to make a footprint in library automation market in India. (Vimal Kumar, 2012)

Library Automation- Need

Modernization of library housekeeping operations mainly by computerization is known as library automation. Library automation is a generic term used to denote the various activities with an improving quality of products and services of library and information centers. It enhances the speed, productivity, adequacy and efficiency of the library staff. The utilisation of computer and related techniques make the provision to provide the right information to right user at the right time in right form in right personal way.

Open source software

There are more than fourteen different types of open source softwares in library and information services. Among these, Koha software has a gaining popularity because of its web based architecture, unicode compatibility, user friendliness, extensive customization possibilities. Apart from both client server levels, social networking tools, subject cloud, author cloud, faceted navigation are attracting users and professionals towards Koha. Open source software (OSS) is an antonym for closed source and refers to any computer software that is released free of cost and its licenses usually prohibit modifications and commercial redistribution. Source code is available under license that permits users to study, change and improve the software and redistribute it in modified or unmodified form. Koha is defined as "free distribution and redistribution of software and source code; licenses that allow distribution of modification and derived works and non-distribution against person, groups or fields of endeavour.

Gift to libraries from new zealand

Koha is the first Open Source Library Management System and it was initially developed by Horowhenua Library Trust, New Zealand in 2000. At present the project has grown as one of the popular Open Source Library Management System by large group

of volunteers from various parts of the world. Now more than 1519 libraries are using Koha software worldwide. Following are the key features of Koha:

- Full-featured ILS
- Library standards compliant
- Web based interfaces
- Free software (Licensed under GNU General Public License)
- No Vendor Lock in
- Active development process
- Community decides what they want
- Frequent software releases

FEATURES OF KOHA

Koha is web-based ILS, with a SQL database backend with cataloguing data stored in MARC and accessible via Z39.50. The user interface is very configurable and adaptable and has been translated into many languages. Koha has the following features that would be expected in an ILS, including:

- **Proven, Stable Technologies:** Koha is tried and tested and has demonstrated both stability and scalability, used in hundreds of libraries worldwide.
- **Software Collaboration and Resource Sharing:** software solutions that is freely available to all libraries worldwide. Libraries benefits from the contributions of other participating library systems.
- **Long term Support:** With proprietary software, source code is 'closed' and support and future development of the product rely on the success and resources of a single vendor. If the vendor goes under, so does your product support. Open-source solutions rely on stable code bases developed and supported by many providers worldwide.
- **User-driven:** open-source software user-driven-you decide what features are important and deserve attention rather than a vendor.
- **Cost-effective:** paying licensing fees for proprietary solutions, users of open-source software can often deploy the product using in-house resources. They pay only for needed support or any additional vendor services they require.
- **Innovation:** code is open, users are free to innovate and improve the software to meet their needs free innovation also means that open-source software has much faster development cycles when compared to proprietary software.
- **Economical**: Free/open source software Koha is an economical alternative to reliance upon commercially supplied software. The cost involved development, license, upgrading, maintenance etc., lower than commercial software. Koha does not need the initial cost like commercial software. It is full featured modern integrated library software (ILS). Koha has the ability to free download under the GNU General Public Licence.

Koha system architecture

Koha is based on client-server architecture. It can be installed on a server running Linux, UNIX, Mac. The recommended operating system is stable version of Debian Linux, although Koha can run on any modern operating system.

- **Client Workstations**: Koha requires only a web browser on the workstation (a graphical browser, or even a text browser for the OPAC). Koha thus functions on PCs running Windows, PCs running Linux, Macs, or even UNIX workstations.
- Koha runs over any TCP-IP network.
- Koha accommodates low-bandwidth connections. It is completely usable on ordinary telephone line connections. This is truer of the librarian interface than of the public interface (OPAC).

PREREQUISITES FOR KOHA

Koha Server Software
- Server operating system: Linux, Open BSD, FreeBSD, MacOS X, or any Vother Unix.
- Web server: Apache. from (http://www.apache.org)
- Programming language: Perl. from (http://www.cpan.org)
- Database: MySQL. from (http://www.mysql.com)
- Integrated Library software: Koha 2.2.9 from (http://www.koha-community.org/)

Koha Client Software

- Koha requires a recent Internet browser.
- Mozilla is advised, but not obligatory. (Koha works with Internet Explorer.).
- Certain data validity checks are made on the client machine, JavaScript must be enabled.
- The public interface (OPAC) conforms to XHTML1.0 standards: the utility is thus compatible with alternate browsers. In particular, the OPAC can be used by people needing special assistive technology (Braille browsers, voice synthesis, text based browsers, etc.).

HOME PAGE OF KOHA

Home page of Koha has all the modules in the front page circulation (check in, check out), patron information, search for all catalogues, Reports, Koha administrations link, Koha tools, about Koha for all links available for the home page.
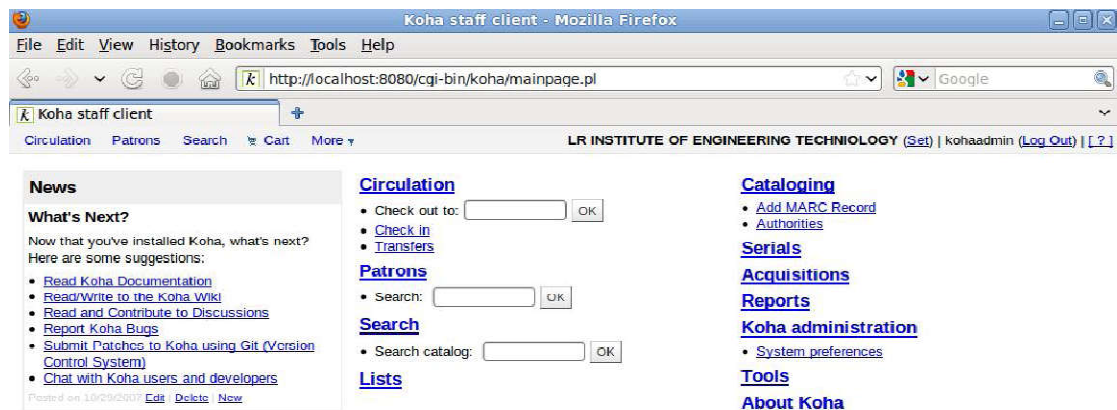
Figure 1. Home Page of Koha modules

MODULES OF KOHA

- Administration
- Acquisition
  - Making New Order
  - Book fund Administration
  - Adding Bibliography to Koha
- Cataloguing
- Patron Management
- 4.1 Borrower Categories
- Circulation
- Serial Control
- Account and reports section
- Koha tools module
- OPAC

ADMINISTRATION

Parameters administration is a very important feature of the intranet module of Koha. Various default parameters can be changed using this functionality. It allows us to define different parameters for the functioning of Koha like the library branches, book funds, currencies, item types, the categories of borrowers, the charges taken for the different types of items etc. "System Preferences" is the most important module of Koha. It deals with administration and maintenance part of Koha Library System. Only Chief Librarian, Chief Administrator or person of similar designation can hold access rights to this module. The Koha Administration page shows various system parameters. It allow us to define different parameters for the functioning of Koha library branches, item types, the categories of borrowers, the charges taken for the different types. System preferences are the most important module of Koha. It deals with administration and maintenance part of Koha. Only Librarian, Administrator or person of similar designation can hold access right to this module.

Acquisition

There are two methods of acquisition in Koha one is Normal acquisition and other one is Simple acquisition. If we want to keep track of budget we have to follow Normal Acquisition and in Simple acquisition we aren't concerned with budget. Simple budget module is useful for smaller libraries where limited amount of money is allotted. Clicking on the acquisition link on the home page of intranet takes us to the page where new orders can be made and old ones can be modified. Here, we can verify the exchange rates and the budgets and book funds before going for a new order. It is very clearly mentions the total budget, the amount that has been spent, and the available amount under each category

Making new order

Here, the first step is to search for the suppliers who will deliver the book. The module allows us to search for the supplier in the acquisition module itself.

Book Fund Administration

Budget and funds administration are the most difficult part of library job to be handled by a librarian. This module helps in that. It is another important functionality available, funds can be allotted to different item categories using this and we can even edit the already allotted funds. Following window appears after clicking on the link in the parameters. Here the details displayed are: Book Fund number/identifier, Name of the book fund, Budget total period and total budget allocated.

Adding Bibliography to Koha

Create bibliography record of a document, once goes to the catalogue search page and find link to add new bibliography page. If we click on the link we reach the following page.

Cataloguing

The cataloguing module is the most important. For cataloguing, Koha maintains full marc record, follow the Dewey Decimal Classification and incorporate AACR2 rule, security and data protection are accomplished at the system, terminal and user code level. Below screen shows the bibliography screen to enter the details of the book. To ease the data entry work, one MARC record is divided into 0 to 9. We can click on the respective number to fill into the specific marc tags. For example, 0 will contain tags like 010, 020, 043, etc. This also makes the work of maintaining MARC tags. We have to just click on add bibliography after finishing up with the details of the bibliographic item and the item get added to the list.

Figure 2. Cataloguing Module

Patron management

When we click on the add Patrons link in the above search result, then the following form will appears which prompts us to fill in the member particulars, the Koha system automatically allots one card number to the Patrons; However it can be changed later if need be. Once the details are filled in, then it prompts us to confirm the record mentioning the joining and expiry date for the Patrons ship, we can edit the details here if something has been written mistakenly. This information is shown only when the user sees his/her membership information in the OPAC.

Borrower Categories

It can be defined by clicking on the same link in the parameters window. We can edit and delete the details of a particular borrower type and we can even add new categories. The second link on the main page allows us to search for an existing member or add new patrons. These are mainly administrative jobs and at access should be given very carefully. Mostly librarian or administrator is given access to this module. The Administrative information about the user can be seen by the librarian like the fine and charges attributed to a particular user, the items currently under issue. The window show in the below figure is a very useful feature of Koha patrons administration module. It gives comprehensive and detailed information about the user. On the

same screen options are given to modify patrons detail like deleting the member from the patrons list, modifying details, change password and modifying user flag, which is nothing but dealing with user permission.

Circulation

The next important module is circulation module, here we can assign even the students themselves can renew the issued the documents on their name. Its main looks like following figure: Process of circulation, we have to enter either the borrower card number or the partial last name of the borrower, as show in the above picture. After entering the above information, it shows the patron information with his/her category and one hyperlink is also available to look into more detail of the patron, if required. If we want issue any book, then the barcode of the book should be entered and the date of issue needs to be selected. Once a valid barcode number is entered and issue button is passed, the window appears that gives information about the issued item.
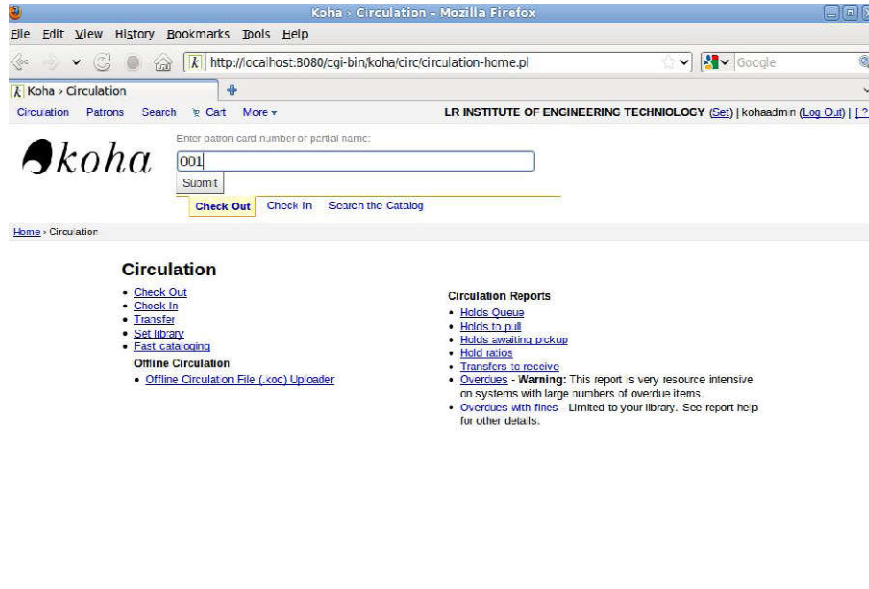

Figure 3. Circulation module

Serial Control

It is possible to register subscriptions with reviews, and to track the arrival of periodicals. Koha manages late issues, skipped issues, and claims with the suppliers. Koha manages complex classifications, allowing the librarian to work with eleven different publication periods (from daily newspapers to annual publications), with delayed publications, and with publications out of sequence. A state of the collection can be defined which will synthesize the missing publications, received publications, etc. The state of the collection can be displayed differently in the OPAC and the librarian's interface.
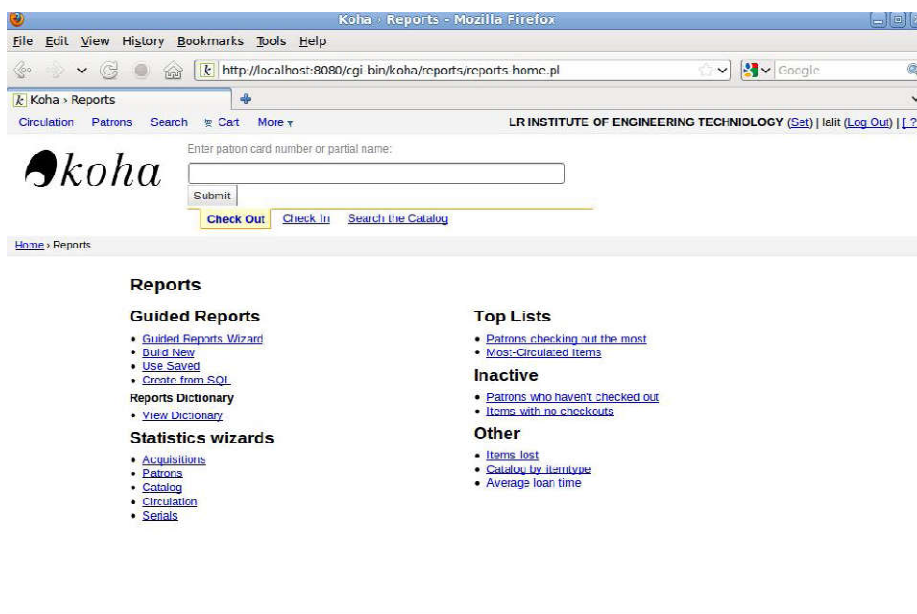
Account and reports section

Figure 4. Koha Report module

This module contains the details regarding the overdue, total amount paid, total amount written off. Here we can generate reports of users activities pertaining to books overdue, overdue fines, fines paid, fines due, etc.
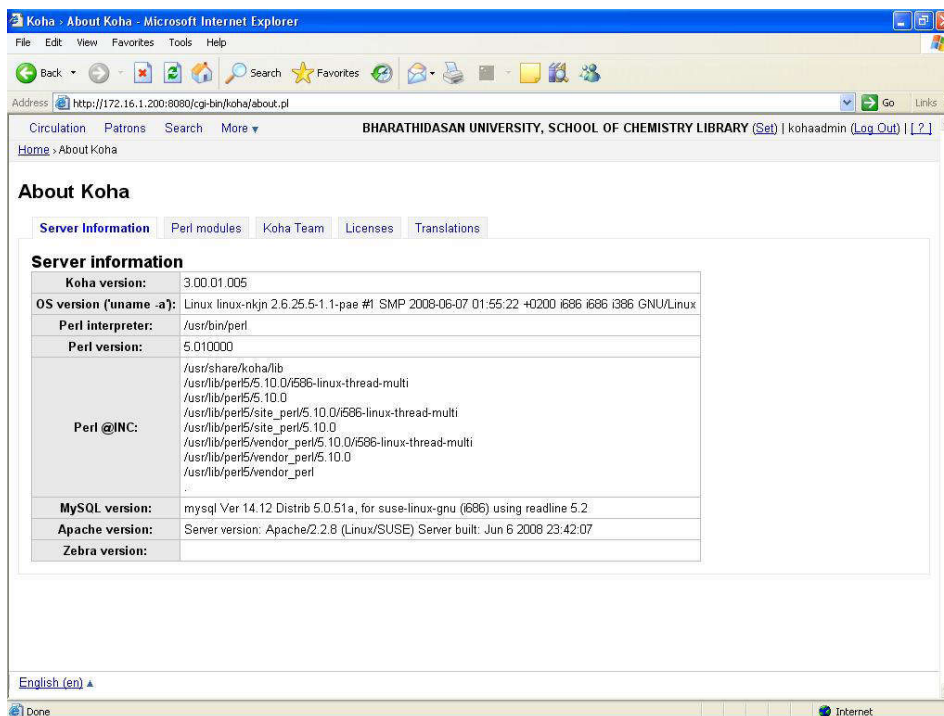
Koha tools module

Figure 5. KOHA Tools module

Koha tools mainly use to stage of MARC records for Bibliography and patron information import to export and than many functions to be use tools the label and patron card creator, uploading patron image, overdue notices so all functions available to the Koha tools modules.

OPAC Search Module

Koha provides a full-functioned Online Public Access Catalog (OPAC).OPAC users can carry out searches starting from ten fields (Keyword, Subject, Title, Class, Barcode, author, publisher, etc.).As in the librarian interface, they can order the results according to several criteria. OPAC users who are logged-in members can place reservations on library items. Bibilio basket: Logged-in members can select records from an OPAC search and retrieve them by e-mail, either in human-readable form or in an ISO2709 format file. An ISO2709 file can be processed using bibliographic software like End Note. OPAC users can submit suggestions for acquisition. Koha automatically informs the OPAC user (by e-mall) of the action taken on each suggestion. Figure 18 shows the details of advanced search. Here, we can search by keywords, subject, title, author and even the barcode of the document.
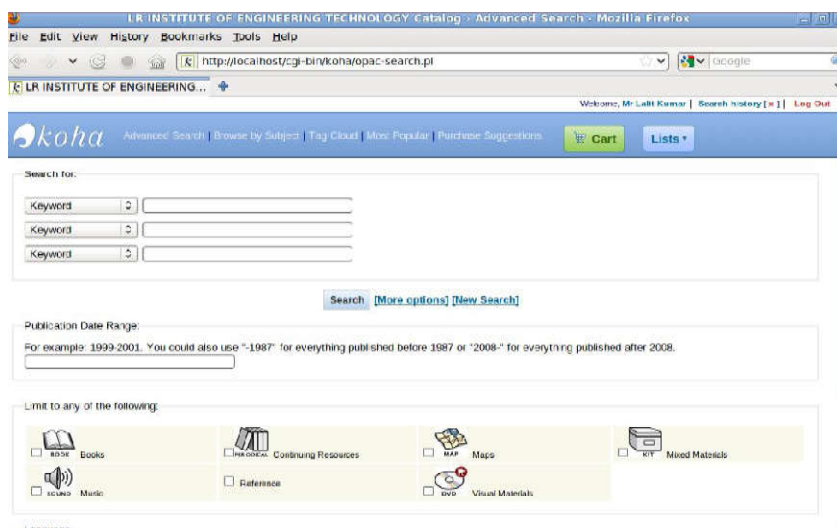

Figure 6. OPAC enter title module

Below information searching for the author and get all information in books. Figure 18 shows the details of advanced search. Here, we can search by Keywords, subject, title, author and even the barcode of the document. Below information searching for the title and get all information about books is given below.
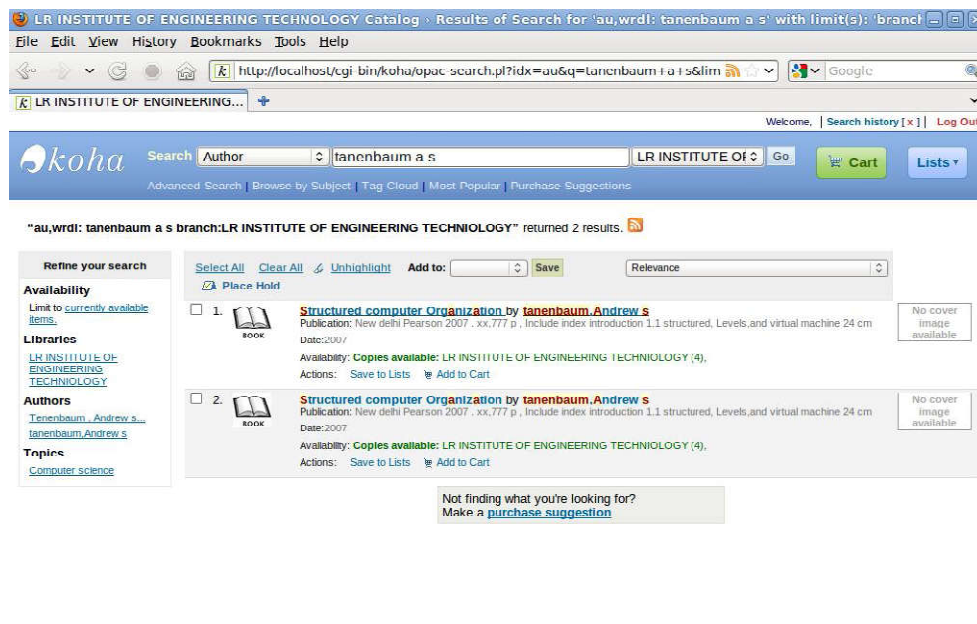

Figure 7. OPAC search result page

Latest version of koha

The latest version of Koha,Koha 3.22.2 was released on 27th January 2016 by the developers in Koha community. Before that Koha 3.22.1 was released on 25th December 2015. Koha 3.22.2 is a bugfix/maintenance release which includes 5 enhancements and 76 bugfixes. The website for the Koha project is http://koha-community.org and Koha 3.22.2 can be downloaded. Koha is the first free and open source software library automation package (ILS). Development is sponsored by libraries of varying types and sizes, volunteers, and support companies from around the world.

Data analysis

The population of this study is library professionals those who are working in the libraries automated with Koha in Ernakulam district. Eight libraries are chosen and the library professionals working in them were taken as samples, these libraries are member libraries in Online Koha community. The questionnaires are distributed to 50 library professionals from the eight selected libraries and most of them responded positively. Most of them responded by filled questionnaires and some of them responded through Google form. The percentage of response is 90% and 10 % of them are not responded. The figure given below shows the response rate of library professionals.
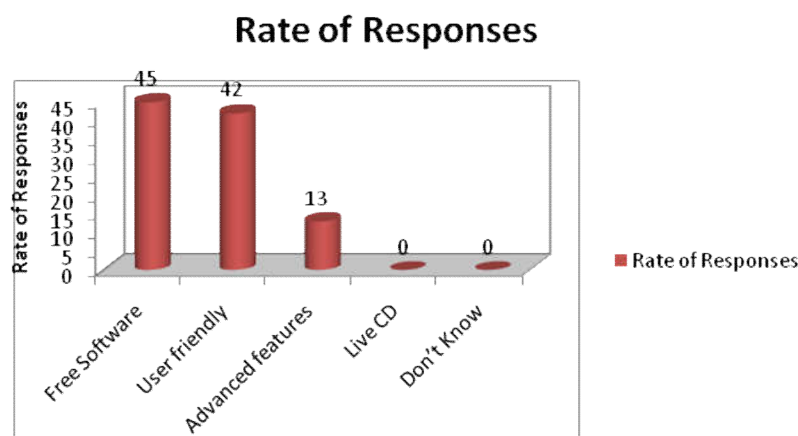

Figure 8. Response Rate of Library Professionals

Here we can identify that 64 % of library professionals acquire awareness about Koha through formal education and workshops/ seminars. Only few of them got knowledge about Koha by various methods of informal education. The following Pie chart shows the different kind of methods/ resources how much helps the professionals to acquire awareness about Koha.

Rate of Responses
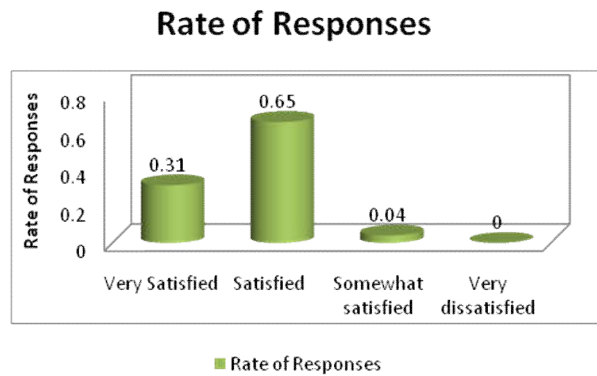
**Figure 9. Methods of Acquiring Awareness about Koha**

Motivation of using koha

This question is to find out the motivation factor for implementing/ migrating to Koha among library professionals. It is because of curiosity to know why most of the libraries moved to using Koha. The above table shows the different motivation factors which affects the library professionals for using Koha, the international integrated library automation software. Most of them (i.e. 87%) are motivated by the two main qualities of Koha such as free source code and user friendliness. And some of them (13%) are motivated by the advanced features of Koha. The following cylinder diagram shows the rate of response against the various motivation factors of using Koha.

Table 1. Motivation factors for using Koha

Motivation Factors	No. of Responses	Rate of Responses
Free Software	20	45%
User friendly	19	42%
Advanced features	6	13%
Live CD	0	0%
Don't Know	0	0%

Problems encoutered while implimenting koha

This question is added to questionnaire to know the various difficulties faced by the library professionals during the implementation and maintenance of Koha in their libraries or migrating to Koha. Some difficulties are faced by the library professionals during the implementation of Koha. The above table shows that 53% of library professionals are suffering by data migration problems for migrating to Koha from other softwares. 25% of the respondents faced the network problems during the routine activities in the libraries with Koha. But 18% of the respondents maintained Koha without any problems. Data migration problems and network problems can be overcome with technical assistance. The response rate against the difficulties with Koha is given below:
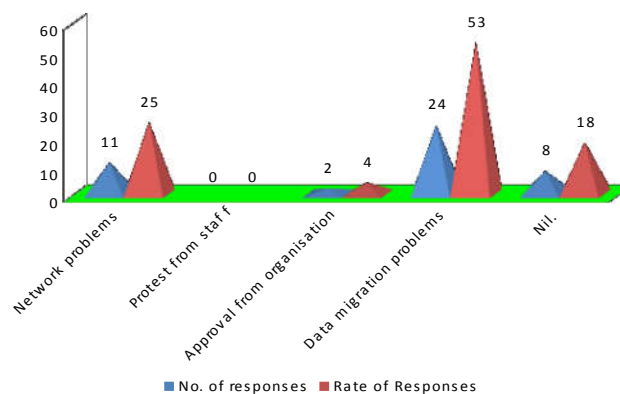
Figure 10. Motivation factors for using Koha

Table 2. Difficulties for implementing Koha

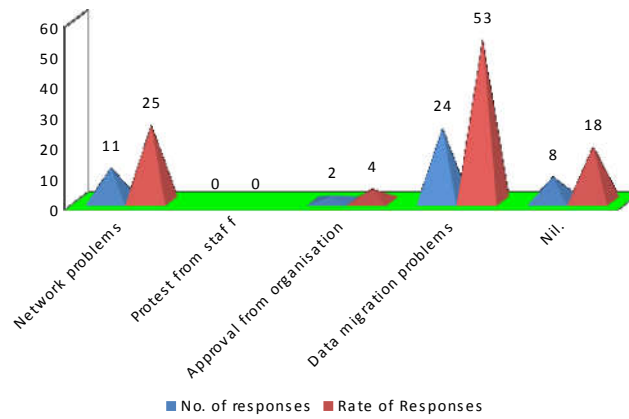| Difficulties	No. of responses	Rate of Responses
Network problems	11	25%
Protest from staff	0	0%
Approval from organisation	2	4%
Data migration problems	24	53%
Nil.	8	18%

Figure 11. Difficulties for implementing Koha

MERITS AND DEMERITS OF KOHA

All software has merits and demerits. Koha also has its own merits and demerits, which is encountered by the 7th question in the questionnaire.

Table 3: Merits and Demerits of Koha

Sl. No.	Parameters	Poor	Average	Good	Very Good	Excellent	Don't know
1	Range of modules	0	1	18	19	7	0
2	Ease of customisation	0	2	17	20	5	1
3	Display and screen layouts	0	1	22	17	4	1
4	User manuals	0	0	17	21	4	3
5	Cataloguing	0	0	18	18	7	2
6	Circulation	0	1	13	22	9	0

The table shows that the opinion of library professionals about Koha with some parameters. Here we can see that most of them are rated all such features as good/ very good. But few of them are not much satisfied with the modules such as serial control, acquisition and customisation. Really some of them are not known about these modules of Koha. Some of the features such as rage of modules, circulation and cataloguing rated as excellent.

Satisfaction with koha

This question added in the questionnaire to assess the satisfaction level of Library professionals with Koha, the open source library automation software.

Table 4. Satisfaction with Koha

Satisfaction Levels	No. of responses	Rate of Responses
Very Satisfied	14	31%
Satisfied	29	65%
Somewhat satisfied	2	4%
Very dissatisfied	0	0%

The above table shows that 65% of library professionals are satisfied with Koha and 31% of them are very satisfied with Koha. Above all it is noticed that no one are dissatisfied with the software Koha, because of its user friendliness. The following cylinder diagram shows the satisfaction level of library professionals with Koha.
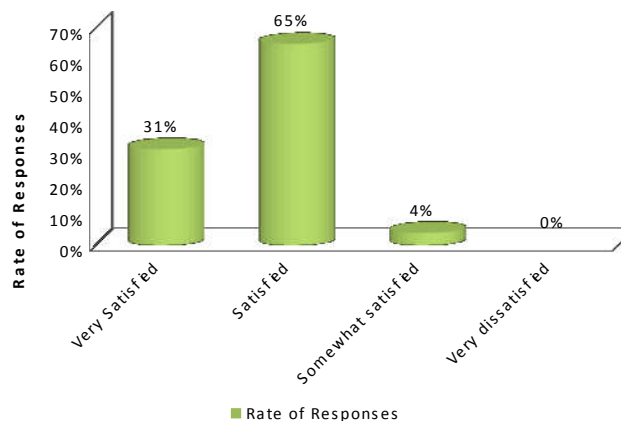

Figure 12. Satisfaction with Koha

Confidence to install and maintain koha

Table 5. Confidence to Install and Maintain Koha

Confidence Level	No. of responses	Rate of Responses
Fully confident	17	38%
Less confident	24	53%
Not confident	4	9%

The table contains the confidence level of library professionals for implementing and maintaining Koha. Here 38% of them are fully confident with the practical knowledge of Koha and many of them i.e. 53% of them are less confident to implement Koha. Only few of them (9%) are not confident with Koha. The following pie chart gives the clear picture of the confidence level of library professionals with Koha.
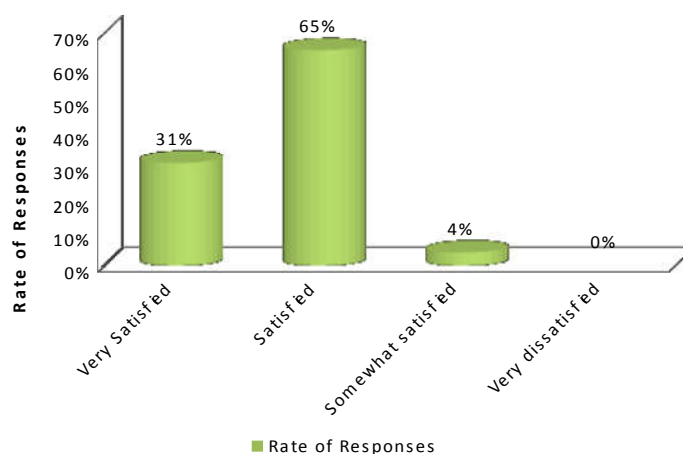
Figure 13. Confidence to Install and Maintain Koha

RESULTS AND SUGGESTIONS

Nowadays most of the libraries are moving to Koha. Financial and technical feasibility are the main reasons behind the change from proprietary library management systems and the adoption to Koha. Most of the library professionals are satisfied with Koha. Popularity of Koha among library professionals are growing, most of the users are satisfied with the version of Koha3.x. Contribution of growing number of community members helped Koha to become a mature integrated library system within a short span of time. Koha project started as a non-profit initiative and it strictly follows the principles of open source philosophy. Koha is licensed under GNU General Public License, the most popular copy left license. It resulted in growing number of Koha installations. There is no need to invest additional amount for preparing technical platform for Koha installation such as MySQL database, Apache web server, Perl programming language and Linux operating system. Survey result shows that majority of the library professionals are satisfied with Koha. It indicates that libraries/ library professionals have recognized the capabilities of Koha features and its stability to implement in any type of libraries. Koha Live CD gives opportunity to try Koha in Libraries without technical support. According to majority of library professionals, data migration from other systems to Koha is hard nut to crack in implementation stage. Some committed library professionals are developed some techniques. If it can be add to Koha Online Manual, it will be helpful for the future Koha Libraries. Other barrier while implementation stage is internet connectivity. It will be solved by the technical assistance. Circulation module is the most favorite module of Koha and most of the library professionals have expressed excellence about the performance of this module. Financial management of periodicals is not possible and users are not satisfied with serial management module. Addition of new advanced features with the convenience of library professionals is much better for the excellence of Koha as an International open source software for library automation. We hope that the latest version Koha 3.22.2 released in 27th January 2016 will fulfill the overall modern requirements of library automation and become an excellent one in the world.

Conclusion

Library professionals are satisfied with the overall performance of Koha, the open source ILMS. In the early stages of development the open source automation system offer only promise and potential and were not yet a viable option for a run-of-the-mill library. Now the things were changed quickly and Koha has become mature in terms of features of commercial library automation systems. This is the result of the generous support from Koha community members. Availability of community support, commercial support, learning tools, library standards and active development has helped Koha open source ILS to make a footprint in library automation market in India and all over the world.

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