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An Analytical Study of Online Public Access Catalogues in Comparison with Features of Amazon and Google: A Checklist Approach

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Abstract - **Recent researches in the field of cataloguingconfirmed that the library catalogue is losing its importance and its service cannot match the level of Google, Google Scholar, Google Books and Amazon. Ultimately it made the library users to bypass the library catalogue for their information requisites. The scenario asserts the need of major shifts in cataloguing in various aspects and compels to examine the current status of library catalogues. Online Public Access Catalogues (OPAC) of twenty eight libraries are taken for this investigation. A checklist has been prepared for the same. Features of Amazon and Google including Google Scholar and Google Books were contemplated for this evaluative study, as the research studies revealed that all these have made great impact on library cataloguing. This investigation finds the weaker sections such as accessibility, content enrichment, and information sharing capability in OPACs; and suggests that it should be integrated into OPAC. In addition, the ongoing developments in OPACs have been discussed in this paper. The researchers aim to identify the problematic areas in OPACs which will certainly be the base for developing the prototype.**

Keywords: **Accessibility, Content Enrichment, Online Public Access Catalogue (OPAC), Relevancy, Searching of Information, User Participation and Sharing of Information**

I. Introduction

A paradigm shift has occurred in information seeking behavior of the users because of the advent of the Internet. Searching of information has become less complicated and the searched information can be accessed directly from the search results just by clicking.This transformation forced to rethink the cataloguers and triggered the developmental activities in the cataloguing field. As a result, Online Public Access Catalogue (OPAC) has emerged in the library cataloguing world. A lot of enhancements have been constantly made to revitalize OPAC to meet the pressing demands, also the importance of OPAC begins to diminish due to the rapid advancementsin information technology. Popularity of other mediation tools such as Google and Amazon has diverted the library users from using the library resources. User's anticipatethe same pattern of services and facilities from OPAC. These factors explicitly necessitate the modernization of OPAC in this direction. Comparing the features of OPACs with Google, Google Scholar, Google Books and Amazon can provide perfect insights for the further development. Keeping these in view, a checklist has been prepared as a tool for this research study. This paper compares and evaluates the current status of OPACs of major educational institutions of Gulf Cooperation Council (GCC) nations with Google, Google Scholar, Google Books and Amazon with the help of this checklist.

II. Review Literature

Numerous research articles published by many leading journals proved that the users are more comfortable with the Internet and can find what they need from the Internet. Moreover these papers ascertain that the students prefer Google than the library catalogue and feel that much effort is to be put to search in OPACs. Limitless search can be made in web, but not in OPACs. Perception of the users is that Google does not require any proficiency to perform search. Web searching is ultimately more satisfying because power and control are in user's hands [1].Several steps are usually involved to find information in OPACs. Multiple access points, different type of databases and complications in information searching confuse the library patrons and finally it leads to underutilize the library resources. As a consequence of these reasons everyone approaches Google even though the library resources are reliable [2]. As per the research study of Helle Lauridsen and John Law, the library catalogue cannot identify all its holdings. This inability reduces the value of library catalogue. Federated search tries to resolve this problem, but it creates some new issues. Federated search is not fast and incompetent to display the result as per relevance because each electronic resource is structured independently. Ultimately the library users turn towards Google [3].

Google, Google scholar and Google books have categorically changed the information landscape. The key reasons for their dominance is their coverage, simplicity, less efforts and easy to locate information. These charismatic characteristics aremissing in the library catalogues. The current generation students are always trying to get the information quickly without much thinking about the quality

[4]. In the fast changing environment, plethora of information can be accessed through search engines as well as through Amazon type of websites. They don't supplant the library, but they are surpassing the library. Students' first and foremost choice is Google among all resources, despite all scholarly information are not free and cannot be accessed through Google. To overcome this problem these resources are now providing abstracts or some pages of the scholarly information without copyright infringements. John D. Byrum describes that the users' communities do not rely on OPAC and are approaching search engines. As per the observation, vast majority of the users are satisfied with these tools and don't bother aboutthe quality of information [5].

Recently, OCLC identified three major trends in the attitude of today's information consumers - self-service, satisfaction, and seamlessness. Services of Google, Amazon, and similar companies are thecause of these emerging trends. Customers have wholeheartedly embraced these products because of their ease of use and quick delivery of "good enough" results. In addition, the search results delivered by online search engines are sorted using relevance ranking systems that are more user-friendly than the ones currently employed by OPACs. Another study states that the users have developed a strong mental model for searching because of their experience on the Internet [6]. Changes on the web is the reason for users' mental models, their expectations, behaviours and strategies, which has made profound implications on OPACs [7]. Due to the common practice on the web, users got accustomed to natural-language searching and typing multiple search terms on a single line without connecting them with Boolean operators. They started to expect the library catalogues alike [8]. This has caused a declining percentage of correct syntax and an increasing percentage of keyword searches with zero results in library catalogues [9]. The library patrons look for information elsewhere because the library catalogues hard to use, unintuitive and ineffective in comparison to search engines and other popular sites. But it is somewhat encouraging that, even though users preferred to use the web over the library catalogue and still do so, studies have continuously proven that users still see the catalogue as a trustworthy, well-organised and impressive tool [1].

The catalogues are recently encounteringyet another trend that is the Web 2.0. The web has become a place of collaboration and participation where users no longer only receive but also create and share content. Librariescan develop better user-centered cataloguesonly by identifying and understanding the desires and behaviours of end-users [10].

This study is therefore looked on services offered by Amazon and capabilities of Google. Amazon has a wonderful fault tolerant catalogue to search a book by a number of ways and tries its level best to figure out the misspell words. Many of the titles on the Amazon site have book jacket, professional review, customer review, table of contents and excerption. The information available on Amazon is more than users' expectations. Amazon's personalized service is extraordinary and a worthwhile service to the users. It can remember what you already bought and will notify you when some new books published in your subject area or by your favourite authors or when the next book in the series you are reading has become available by email [11]. Presence of these distinctive features simplifies the book selection process. As per the research findings that some users use Amazon first to search books and using the same information to find the particular books in the library. Of course, Amazon is not replacing the libraries, but the library professionals should focus on the need of the users to modernize OPAC to suit the current demands [12]. Users can find ratings, comments, images of the cover and inside pages of book in Amazon. These features provide immense insight about books to the users. Amazon offers suggestions from the purchaser as well [13]. Steps should be initiated in OPACs to offer similar services to find the exact resources. User's suggestions can be includedinstead of purchaser suggestions in OPACs.

Nowadays users' approach varies in many aspects in using the library. They want resources in all formats and require self-service approach as much as possible. Most importantly, answers to questions and solutions to problems are their requirements. Minimum effort and timeliness are the tendency in information discovery process. They want just-in-time service [14].

The review literature comprehensively bespeaks the inevitabilities of redesigning the library catalogues to deliver the library services more appropriately and to feel the library users that OPACs can fulfill their information necessities. Google, Google Scholar, Google Books and Amazon have been selected for this comparative study. Research studies mentioned in the review literature elaborately explain their impact on OPACs and justify the selection of Google, Google scholar, Google books and Amazon.

III. OBJECTIVE OF THIS STUDY

The primary objective of the study is to find the current status of OPACs in line with Amazon, Google, Google Scholar and Google Books mainly in information searching, viewing the retrieved results, relevancy, contentenrichment, accessibility, user participation, user profile and presentation, and sharing of information for revitalizing the OPACs for its sustainability.

IV. Checklist Preparation

To meet the objectives, a checklist has been prepared based on the features available in Google, Google Scholar, Google Books and Amazon as they have made profound impact in information searching process. Research papers in this field of study are also used as references to further add the value to the checklist. Criteria for searching, viewing, relevancy, enriched contents, accessibility, user participation, user profile& presentation, and information sharing are the sections of the checklist. As search functionality becomes important criteria to improve the usage of OPACs, basic search, advanced search, spell checkup, truncation, Boolean operators, search history, refine search option, document type, similar items, relevance factor and help option to search are encompassed in the checklist. Viewing the retrieved result is equally important like search criteria. Email, print and save options are vital for viewing the retrieved result as per users convenience and included in the checklist to obtain fruitful results [15][16]. Relevancy is added in the checklist as it is one of the important factors to be considered. Relevant, partially relevant and irrelevant have been used as parameters to judge the relevancy. Numerous research studies found that these parameters can be used to evaluate the precision of retrieved results for the particular queries [17]. Amazon is playing a proactive role in the content enrichment, which is vital to make the catalogues more useful [11]. Fields used in Amazon and Google Books for the content enrichment are added in the checklist.

If accessibility is good, OPACs will be perceivable, operable and understandable. Good accessibility can facilitate to navigate the contents easily [18]. In the current circumstances, good accessibility is a prerequisite for trouble-free browsing. Likewise, faceted navigation is one of the necessary characteristics for browsing. Faceted navigation allows the end-users to move into the particular area, for example subject, journal or books. This method guides the users to refine their search query in an appropriate manner. Faceted navigation determines what facets are to be used to find the particular resources and maps the users thinking to the resources. It provides multiple options to narrow down the search [19]. As Google, Google Scholar, Google Books and Amazon open up great opportunities for seamless search,accessibility and faceted navigation become mandatory for the evaluation of OPACs.

Contemplating many essential developments in OPACs to construct it as an interactive tool, the participation of library users is also imperative. User's participation is Amazon's novel idea, in which users can rate, review, tag, lists and discuss through forum.In addition to that, personalization is an extra innovative approach of Amazon. Personal recommendations, recent searches are some of them for personalization [10]. The checklist has all these core components for analysis.

V. Scope Of The Study

OPACs of educational institutions of GCC nations have been taken as sample for this study. This sort of research study was not conducted in this region. Very few studies were previously done in this subject area for different problems. Ahmed Elhafiz Ibrahim made a research on "Displays of Arabic script on web-based OPACs in GCC institutions" [20]. RodericVassie studied on improving access in bilingual script catalogues through Arabised authority control [21]. Both the researches are on Arabic script on OPACs, not on other functional areas**.** The authors of thispaper also made one analysis for their research study, which included bibliographic information in OPACs, handling of multidimensional format of information, access permission, searching efficiency and some additional options such as renewal option, reservation facility and save option as a preliminary study to the present one [22].

VI. Methodology

Data has been collected from twenty eight OPACs, in which five OPACs are from Sultanate of Oman, one OPAC from Bahrain, four OPACs from Kuwait, six OPACs from Qatar, four OPACs from Saudi Arabia and eight OPACs from United Arab of Emirates. OPACs of leading colleges and universities in this region are taken as samples. SirsiDynix, VIRTUA library systems, LIBERO, Innovative Interfaces Inc'sWebPAC PRO, Winnebago Spectrum by Sagebrush Corporation, Falcon Software's library system and WebVoyage software are used by these academic institutions for their library system. Most of the libraries are using SirsiDynix's product. Using these renowned softwares to develop their OPACs is imperative to enhance the potential of OPACs.The selected OPACs are web-based and can be accessed publicly, which paved the way to conduct the research successfully. Results of accessibility factor were verified with the help of computer science engineering expert. Subject experts in the respective fields searched the OPACs and determined the relevancy factor.

VII. Analysis And Interpretation

The study focuses on features of Google in one section and features of Amazon in the next section. 10 elements under Google and 25 elements under Amazon are used to evaluate OPACs. Search facility in Google Scholar is fundamentally similar to Google. Google Scholar is an excellent tool to

provide required scholarly information. Google Books haveadditional features such as review, related books, contents, add to my library and search inside the book, when compare to Google.

A. Comparison with Google

Features of this section are very common in nature and basic such as keyword search, truncation of words, phrase search, stop word removal and email option etc., which have been divided into two sections namely Criteria for searching and Criteria for viewing.

1. Criteria for Searching

Figure 1 illustrates that except Proximity search (ten OPACs) and Stop word removal (thirteen OPACs) all other elements are present in almost all OPACs. It isclear evidence that the transformation happens in the cataloguing world, but the concern here is whether these improvements are adequate or not to perform well like Google and Amazon.

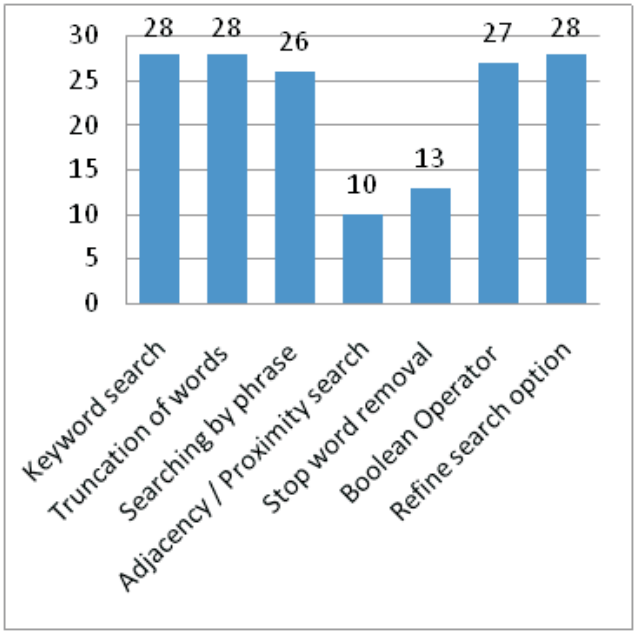


Fig. 1 Criteria for searching - Google

2. Criteria for Viewing

It could be observed from Figure 2 that email, save and help options can be seen in a majority of OPACs, which again underpinthe developments of OPACs. Compared to Amazon and Google these functionalities are currently indispensable. Many other features are also essentialto strengthen the capabilities of OPACs. They are discussed in the subsequent sections of the paper.

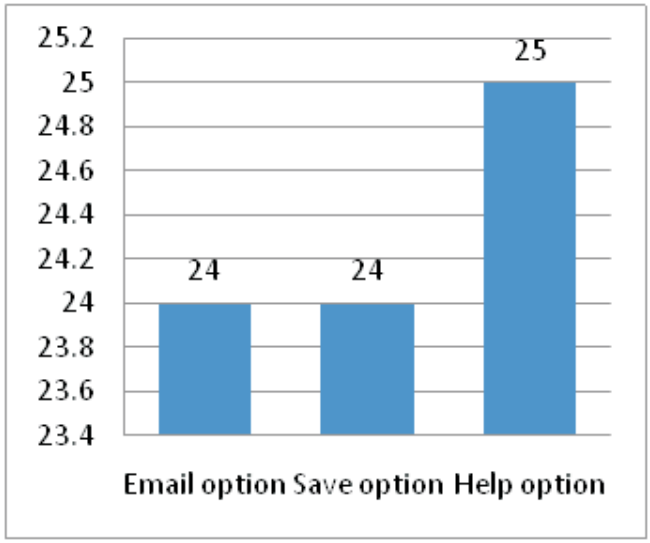


Fig. 2 Criteria for viewing - Google

B. Comparison with Amazon

1. Searching Options

Basic search, advanced search, automatic spelling correction, full text access and faceted navigation areanalyzed in this part of the analysis. Searching features considered in the previous part of the analysis are excluded here to avoid duplications.For the same reason the distinguish features of Google Books are considered under Amazon because Amazon contains all these features.

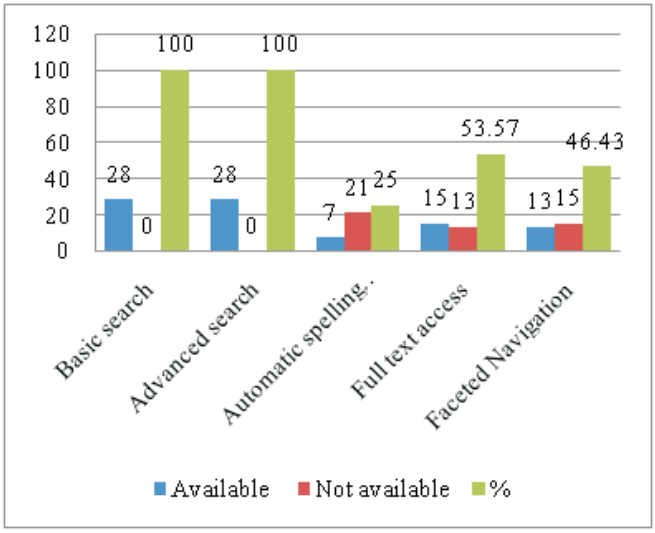


Fig. 3 Searching options

Full text access is possible in fifteen OPACs out of twenty eight OPACs (53.5%). At present, everyone seeks information rather than document locations. Presence of full text access facility in OPACs resolves this impediment. Faceted navigation is another quintessential functionality, which assists the users to narrow down their search in a specific way by facets. Subjects, authors, dates, types of materials and

locations are some examples of facets.Thirteen OPACs (46%) have implemented faceted navigation. These are all notable developments.

Most of the OPACs in this sample do not have spellcheck provision. Only seven OPACs (25%) have this key feature. OPACs are lacking behind in using the technology in utilizing the facility of automatic spelling corrections. The presence of these advanced level features (Figure 3) reveals that the redesigning process in OPACs takes place to include the necessary components to perform searches in multiple ways, but it should be made available in all OPACs.

2. Relevant Result

Users anticipate precise results for their query. OPACs should be capable of providing relevant information to compete with search engines and online bookstores.

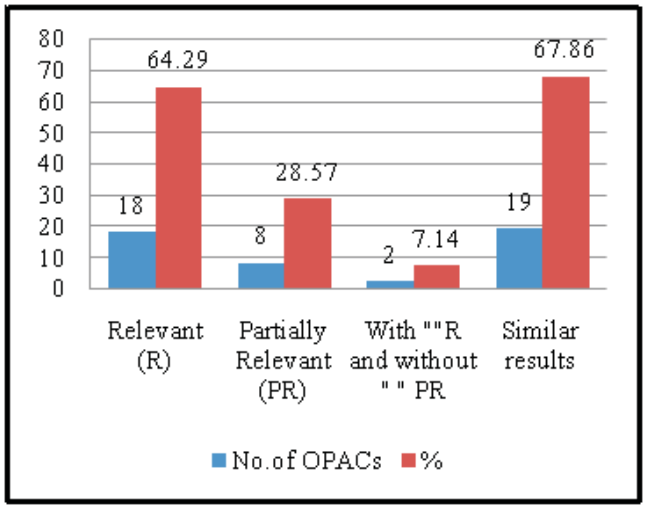


Fig. 4 Relevancy

Relevancy factor is to be included in OPACs to assess the relevancy of the retrieved results. Sample queries have been formulated to examine the relevancy in OPACs. Expertise of subject experts is used to examine this factor. The first ten results were taken for the analysis. Out of these ten results, subject experts decided how many are Relevant, Partially Relevant and Not Relevant, based on this each OPAC has been rated. 64% of the OPACs in Figure 4 are showing relevant result. “Similar Results” option is another way to guide the users in the right direction for the right information. This important feature is integrated in nineteen OPACs (68%) of this sample, which is yet anothersignificantprogress.

3. Content Enrichment

Figure 5 shows that OPACs are now adopting this idea. 50% of OPACs are having book cover image. Professional reviews certainly provide a clear picture about particular resources, but it appears only in six OPACs (21%). Similarly only one OPAC (3.6%) in this sample has 'Excerpts' and 'Popular and Recommended list'. It indicates poor content enrichment.

The 'Table of Contents' feature can be seen in fifteen OPACs (54%) and 'Summary' can be seen in twelve OPACs (43%). Most of the OPACs deal with different types of information resources, which is a remarkable advancement. Regarding content enrichment, OPACs have not fully embraced the Amazon path. Constructive movement is inclusion of book cover image; Table of Contents and different type of resources, whichcertainly enhance the potential of OPACs. It is apparent from this result thatprofessional reviews, excerpts, and most popular and recommended list are other areas to further upgrade the OPACs.

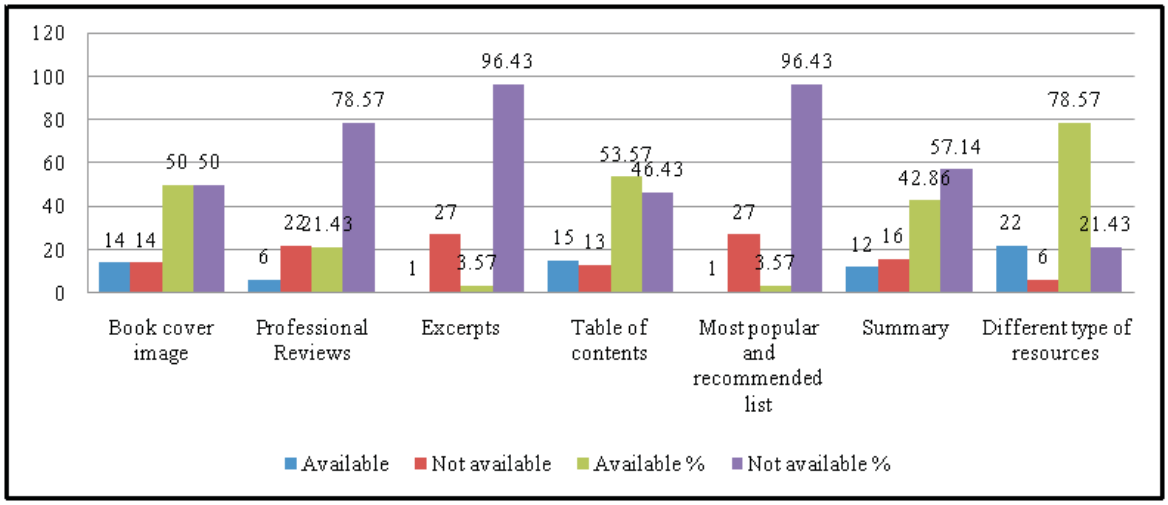


Fig. 5 Content enrichment

4. Accessibility

Functional Accessibility Evaluator 1.1[23], a tool developed by University of Illinois at Urbana-Champaign has been used to find accessibility. Navigation & orientation and HTML standards are considered as valid factors to find the level of accessibility. Accessibility of Amazon is also fair. As per the result shown in Figure 6, a majority of OPACs are having fair (seventeen OPACs) and poor accessibility (eight OPACs).Good accessibility in OPACs can ease the browsing and navigation. Only twelve OPACs have fully complied with World Wide Web (W3) Consortium's HTML standards. This study emphasizes that the keen attention should be paid to create OPACs with excellent accessibilities

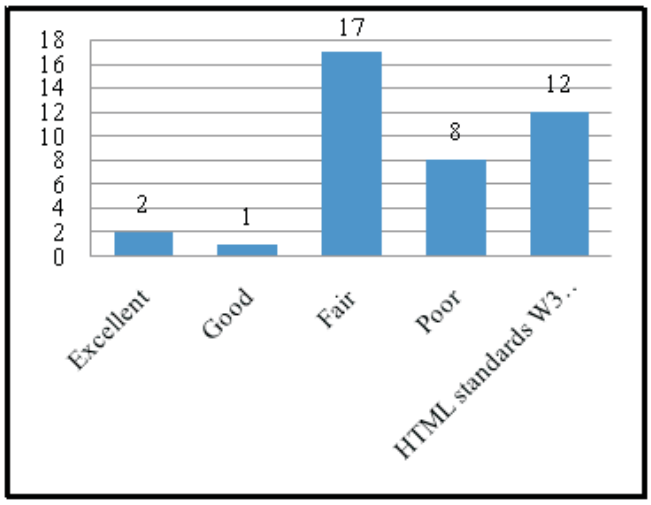


Fig. 6 Accessibility

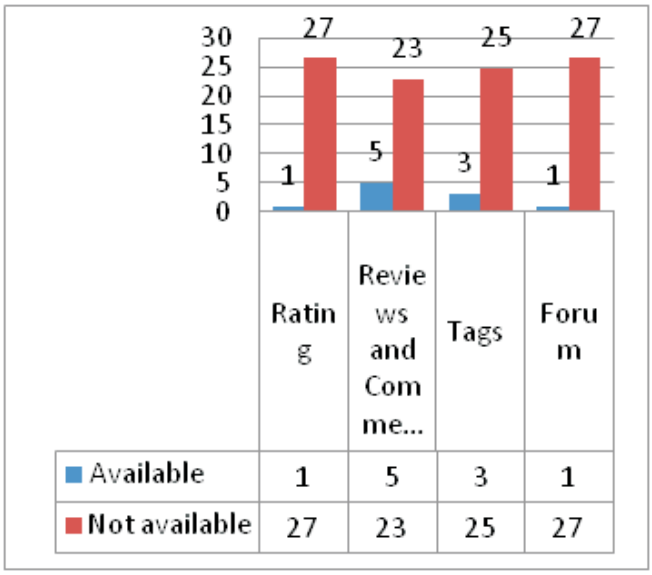
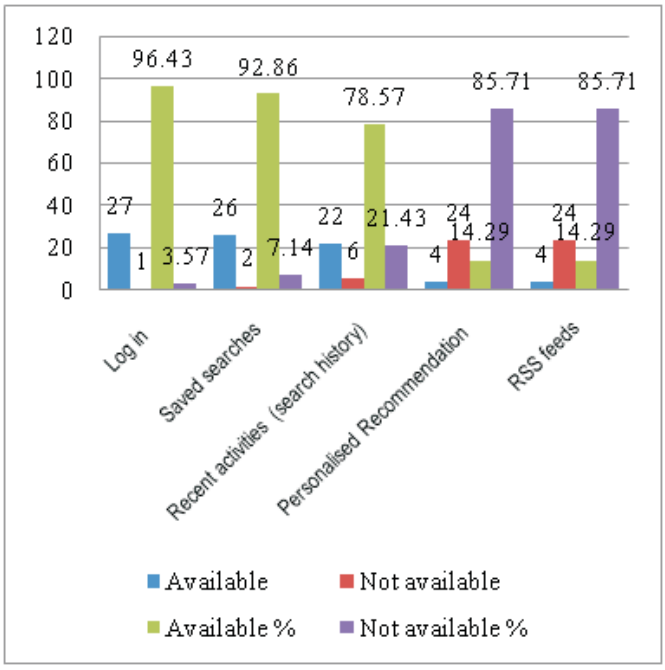


Fig. 7 User Participation

5. User Participation

Amazon is instrumental in introducing novel ideas such as rating, reviews from users, tags and forum to expand its usability.The Figure 7 depicts that less importance is given in OPACs for user participation. The OPACs are not ready to accommodate these features to bolster the user participation. Only one OPAC has 'rating' and 'forum' options. Five OPACs are permitting to upload the user's views and comments. Tags option is existing in three OPACs. To put it in a nutshell, most of the OPACs are not designed to incorporate these innovative ideas to come out of the conventional boundaries.



. 8 User Profile and Presentation

6. User Profile and Presentation

Amazon offers many facilities to its customers to enable them to use its website in a more fruitful way. These steps attract everyone towards Amazon. As per the Figure 8, it can be viewed that OPACs have also started these services. Login, saved searches and search history options are available in most of the OPACs of this sample. These features assist the users to continue their search without any difficulties and follow up can be done without any strain. 86% of the OPACs don't handle personalised recommendation and RSS feeds. It is another setback in the library cataloguing in using modern technology. Cataloguers should consider these drawbacks to make OPACs as a powerful tool.

7. Sharing of Information through Social Networks

The emergence of social networking influences much in information sharing. Amazon utilizes this technology to share information, but most of the OPACs are unsuccessful in

extending this service. Figure 9 illustrates only two OPACsare equipped with this kind of tool. As per this study, the developmental activities are in slow pace to empower the library catalogues, though technology favours in remodeling OPACs to widen the operation in multidimensional ways. Research in this area can help to resolve these issues and to regain the glory of OPAC as a prominent information provider.

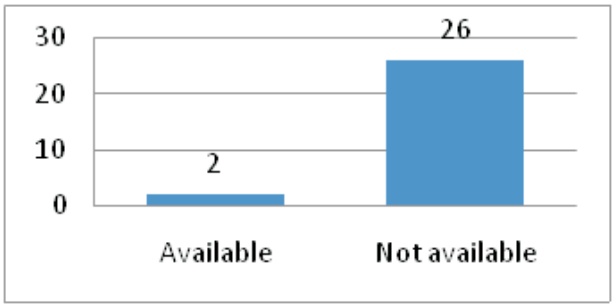


Fig. 9 Sharing of Information

VIII. Conclusion

Findings of this study reveal that there are improvements in OPACs but at the same time there is still a wide gap to reach the level of Amazon and Google products. Furthermore, this study pinpoints where the modification should be done in catalogues for better services in line with Amazon and Google. Amalgamation of Amazon's features and Google's outreach in getting information into OPACs become indispensable. No OPACs can search beyond its limit like Google, Google Scholar and Google Books. OPACs must search their own collections, search engines and open sources pertinent to their customers. A Prototype must be designed with these qualities. User-friendliness, simplicity, good interface and accessibility must be characteristics of the prototype to make OPAC as a suitable tool in the information rich world.

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