INTRODUCTION

In this digital era, libraries have made their presence on the Web in the form of library websites. From merely the collection of static web-pages providing information about library, its resources and services, library websites are now transformed into information gateway. Library websites provide access to OPAC, electronic resources such as e-journals, e-books, databases (full-text as well as bibliographic), e-reference resources, etc. Facility for online request and feedback is also provided through library website. In University environment, libraries should facilitate learning as well as research and so is the case of library website. In nutshell, we can say that library websites should be user-centred in terms of their content as well as in terms of information architecture and design. Library websites should meet the usability requirements to achieve the user satisfaction.

In this present study, the efforts made for improving the usability of the website of the Central Science Library (CSL), University of Delhi are discussed. Earlier, the usability evaluation of the CSL library website was done by Pant. Based on the findings of this study the required improvements in the website were made. As part of improvement, Information architecture of the website homepage was made user-friendly and new features were added to the website.

The Central Science Library (CSL), University of Delhi is a prestigious library serving the departments and centres of science streams of University of Delhi. It has a good ICT infrastructure. The library has a huge collection of books and bound journals pertaining to various science disciplines. 235 scientific periodicals are currently subscribed by CSL, most of them are online. Besides, CSL has online access to e-resources available through UGC-INFONET Digital Library Consortia and subscriptions by the University of Delhi. Total membership of CSL for the academic year 2014-2015 was 3,237 members.

LITERATURE REVIEW

Before designing the website it was felt to have knowledge about the various studies conducted in the related field of website designing. Various authors have described the development process of library website designing, while some others have discussed the usability tests to determine the strengths and weaknesses in the existing website. Some of these studies are discussed here.
Rozic-Hristovski, et.al. discussed the use of menu driven structure, uniform graphic design and harvest system based search engine to develop the website. Houghton described the way by which the information was organized in the website to facilitate the users. Raward developed the best practice design principles checklist for designing the academic library websites. Usability Index Checklist (UIC) developed from the principles derived from the Human-Computer Interface (HCl) literature was used. McGillis & Toms assessed the usability of an academic library website. Study shows that users experienced difficulties in understanding the site’s information architecture. George discussed the use of web-based survey and think-aloud protocol to determine the strengths and weaknesses of the original design during redesigning the academic library website. King & Jannik described the usability testing of the library website and incorporating the feedback from user testing. Turnbow, et.al discussed the structured analyses of the previous library website and user surveys to redesign the UCLA library website. Usability testing through the card sort protocol and the think-aloud protocol were also discussed. Rogers & Preston described the usability evaluation carried out through survey questionnaires, focus groups, formal usability testing and card sort method. Tidal discussed the process of redesigning the homepage of library website to make it more user-centred. User survey and two usability tests were conducted. Becker & Yannotta used the think-aloud protocol for the iterative usability testing of the new library website. Pant evaluated the usability of the website of Central Science Library (CSL), University of Delhi using a checklist and questionnaire survey of representative users. Improvements required in the website for increasing the usability of the website are discussed in the paper. Additional features to be included as suggested by users in the survey are also given.

**OBJECTIVES**

- To redesign the homepage of the website to make it user friendly and look better;
- To make the information architecture of the CSL website logical and user-centred to support website usability;
- To provide the content of the website to its target group (students, research scholars, faculty members) in an easy to navigate manner;
- Promote library resources and services;
- To introduce Web 2.0 functionalities.

**METHODOLOGY**

The improvements in the website were done on the basis of the findings and recommendations of the research study to evaluate the usability of Central Science Library (CSL) website. The study was carried out using multi-method approach of standard checklist and questionnaire survey of representative users. The information architecture of the CSL website was restructured; the website homepage was redesigned; and new features were added to improve the website in terms of functionality and ease of use. Content of the website was mainly taken from the pre-existing website, some new content and features as per requirements were taken for redesigning the website.

Analysis of the previous website for its shortcomings was done and requirements for the new website were figured out. It was found that the pre-existing website has some dead links. Information was organised under some vague headings not meant for their intended purpose and content was categorised poorly. In the earlier website, services provided by the library were not given; various e-resources were not organized according to their type; the information about the library, its timings, etc. were not provided; notice board for displaying the latest news was not available in the homepage; navigation to other pages was not good and content redundancy was there within the website. Furthermore, there was no search facility provided to search any information within the website. Moreover, the questionnaire survey carried out by Pant also figured it out that users want to have notice board, site search facility, list of services, FAQs, interactive forms as some of the additional features to be provided on the CSL website.

A comprehensive list was made for organizing the content under major categories which should be easily understandable by the target users. The website was planned to provide the better navigational support to users to search the required information. The drop-down menu structure was adopted to be used for organizing the content. Broken or dead links from the existing website were identified and removed from the content of new website. In order to make the site more interactive, various webforms were designed so that users can use them for various purposes such as feedback form, book suggestion form and query form. Notice Board, Site search feature through ‘Google custom search’, various search widgets were provided. Links to useful open access resources, public domain or freely available information resources and tools were also provided.

**WEBSITE DESIGNING**

The website was developed using HTML, CSS and Java Script as the Front-end and PHP was used for server side scripting. Dreamweaver and Photoshop software were used for designing the web-pages and banner respectively.

- **Information Architecture**

  **Homepage**

  The Home-page for the website was designed as per the wireframe given in Fig. 1. The homepage is divided into four portions; Banner, Drop-down menu for navigation between different pages, Main Body portion and Footer. Banner for the CSL website was designed using Photoshop software. A tag line (The Gateway to Scholarly Scientific Information) is also given to the website, reflecting the role of the CSL website.

  Site navigation is achieved through drop-down menu and hypertext link structure. The menu structure is limited to maximum four levels: the main menu and three levels of sub-menus (Fig.2). The main menu bar is categorized into seven menus, viz. About Library, Services, E-Resources, Quick References, Additional Resources, How to? And Quick Links (Fig.3).

  "About Library" menu contains welcome address, brief history and description about CSL, Library hours, Library staff and departments served by the library, Year wise Status Report, Annual Reports, User Statistics, etc. as sub-menus.

  "Services" menu is aimed to provide information about the different services provided by the library.
"E-Resources" menu contains sub menus related to electronic resources subscribed by the CSL or accessible through UGC-INFONET Consortium. It also contains links to open access books and journals.

"Quick References" menu contains links to subscribed reference resources (such as Credo Reference, Keesings World, and Statesman's Yearbook) as well as reference resources available in public domain. Links to general reference sites, encyclopedias, dictionaries, subject directories, conference alerts, news sites, etc. are given.

"Additional Resources" menu contains links to enable the library users to access information in other knowledge institutions both national as well as international. Links are given to DELNET, NISCAIR, National Science Digital Library, UNESCO Natural Science Portal, Open DOAR, etc.

"How to?" menu is designed to provide information literacy to library users. Links to some utility sites useful for research purpose, online tools, etc. are given in this menu.

"Quick Links" menu is aimed to provide the links to some of the useful sites for students, researchers, teachers and library staff.

In the left hand side of body portion of the homepage important links in the form of buttons are provided to give more visibility to selected content/resources.

Third party web widgets are embedded in homepage. A web widget is a small application that can be embedded into third party website and can be executed within a webpage. It provides web 2.0 functionality. Web widgets for Google Scholar search, Merriam Webster Dictionary search, Web of Science search and Wikipedia Search are embedded to facilitate direct search facilities to these websites from homepage of CSL website. Besides, Google Custom search for searching the content of the website is also provided.

Web OPAC search for Delhi University Library System is given through button link. Users might be confused about library jargons like WebOPAC, Electronic resources, etc. To facilitate users to find out what they want in simple terms, "Want to find?" Option is given. Under this option links to the respective sites to search e-article, e-journal, book, e-book and article on Inter Library Loan are provided. On the right hand side of the body part, slide show of various e-resources accessible to CSL is given. Below this, Notice Board is provided in which latest News/announcements are given to inform the library users.

Three web forms are provided; the ‘Ask the Librarian’ form facilitate the user to ask their query to the library staff, library users can suggest a book to purchase using ‘Suggest a Book’ form and ‘Online Survey’ form are meant to get the feedback from the users.

The footer portion of the homepage contains the link to contact address, copyright information for the website and date of the last update made to the website to keep the user informed about currency of information.

There are lot of scholarly information resources available over the internet as Open Access. Attempt has been made to provide the links to these resources under suitable categories. Few of them are discussed here. Open access journals can be accessed through links to DOAJ (Directory of Open Access Journals), Electronic Journals Library, Free Medical Journals, Pub Med Central and NISCAIR-Online periodical repository. Links are provided to open access thesis databases such as NDLTD (Networked Digital Library of Thesis and Dissertations) and Sodhganga-Indian thesis and dissertations. Links are provided to DOAR (Directory of Open Access Repositories), Digital Library of India. Public domain books can be accessed through links to Project Gutenberg, Digital Book Index, etc. Links are also provided to public domain or freely accessible reference resources such as encyclopedias- Infoplease encyclopedia, Encyclopedia of Life, Medical encyclopedia; dictionaries- Merriam Webster dictionary, Oxford advanced learners’ dictionary, etc.; various subject directories; conference alerts, etc. Besides, links to several freely available online tools are also given such as for building citations, tools for converting word file to pdf file and pdf file to word file, etc.

As a prototype for developing the collection of selected Video content available over Internet, few videos were selected through Youtube and these were embedded in a webpage (Fig.4). As a web 2.0 functionality, these videos can be directly played in this webpage or user can go to respective Youtube video through them.
CONCLUSION

The website of CSL aims to serve as a library guide to resources and services of Central Science Library, DU. At the same time it also aims to act as the gateway to various electronic resources it subscribes; various open access resources available on the Internet and links to various other sources of importance to academic community. The information available in the website should be well organized, highly informative, need based and easily accessible. To organize the content of the website in a systematic way and to facilitate the navigation, the website is made menu driven and content is organized under different headings which are easily understandable to users. Web forms were also formed to interact with the users. A customized search feature using Google custom search is provided to find out the information available in the website.

The developed website needs to be maintained and updated regularly to meet users' needs. Besides, regular feedback from the users need to be collected and use of the website should be evaluated. Over the period of time, the URL of several websites may be changed. Checking dead links and replacing old URL with new one need to be done regularly. The structure and content of the website need to be reviewed regularly. New information resources, especially open access resources, will be added to meet the user needs. In future, the website may be populated by adding more web-pages and incorporating latest web technology.

REFERENCES


