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UCD Approach for the Management of User Services in University Libraries

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Abstract This paper discusses User Centric Design (UCD) standards, processes in the light of user oriented services in academic Institutions. It discusses traditional methods of user services in libraries and shift to modern user centric services by which users are able access all types of resources online and can even interact with the librarian with regard to any services. The users are able to renew their books online and get the resources of other libraries through document delivery services without physically stepping into the library. Some of the models mentioned in this paper highlight the services which are designed as per users' needs. The changes of automation, e-publishing and publishers way of delivering online resources with added value services like e-mail alerts, RSS feeds etc. have forced librarians to concentrate on library users while planning services and to transform the libraries in academic institutions from document centric to User Centric.

Keywords *User Services; University Libraries; UCD-Standards; User Services-Management*

1. Introduction

User centred design (UCD) is an approach while designing any product, service or any related operations. Though the concept has become widely popular with the software development focussing on the end users all through the different stages of design process, it is now spread to all the domains connected with human interaction in the creation of any product or services or operations including those related to libraries and information centres. The concept UCD has been gaining prominence in the domain of the libraries and information centres, as they need to handle varied collections of information resources and services for their users, while experiencing transformation in their

environment with the emergence of latest information formats and the developments for disseminating scholarly information quickly.

Thus, the paper intends to outline the different perceptions of User Centred Design and discuss the application of UCD concept in planning the collection of information resources and user services for academic libraries.

2. UCD (User Centric Design)

The term 'design' (verb) is defined as 'to plan and make decisions about something that is being built or created' (Merriam-Webster Dictionary). Thus, the user-centered design (UCD) focusses on user's involvement all-through the planning, design and development of a product. Webopedia (http://www.webopedia.com/TERM/U/user_centered_design.html) defined it as "a design philosophy and a process in which the needs and limitations of end users of a product are given extensive attention at each stage of the design process". Several authors, associations, organizations made incredible efforts to conceptualize UCD in a way that can be applied to every condition. Usability Professional Association explained User centric design (UCD) "as an approach to design that grounds the process in information about the people who will use the product". Norman (2002) described UCD as "a philosophy based on the needs and interests of the user, with an emphasis on making products usable and understandable". By this definition, it is understood that actual user involvement does not form a part of UCD alone by necessity, but for the effective development of product or service. Whatever be the several perceptions of UCD, it can basically be characterized by a focus on the user, and on that the user's perspective should be incorporated in all stages of the design process. Further, it is understood that involving users in the design process is a common way of ensuring that their needs and interests are being met.

A. User Centic Design – Standards

The international standard ISO 13407 (Human centred design processes for interactive systems) was formed as the basis for many UCD methodologies. This standard defines a general process for including human-centred activities throughout the development life-cycle, but the model does not specify exact methods. The standard was further revised by ISO 9241-210:2010 - Ergonomics of human-system interaction - Part 210: Human-centred design for interactive systems, cancelling and replacing ISO 13407:1999. The revisions would be-

- clarifying the role of iteration in the whole design process (not just evaluation);
- emphasizing that human-centred method, can be used throughout the system life cycle;
- explaining design activities;
- clarifying the principles of human-centred design

The standard emphasizes that – "human-centred design is an approach to interactive systems development that aims to make systems usable and useful by focusing on the users, their needs and requirements, and by applying human factors/ergonomics, and usability knowledge and techniques. This approach enhances the effectiveness and efficiency improves human well-being, user satisfaction, accessibility and sustainability; and counteracts possible adverse effects of use on human health, safety and performance". Various approaches to UCD are following the latest specifications of the ISO standard. The standard lists 6 important principles that will ensure a design user centred:

1. The design should be based upon an explicit understanding of users, tasks and environments.
2. Users are involved throughout design and development.
3. The design is driven and refined by user-centred evaluation.
4. The process is iterative.
5. The design addresses the whole user experience.
6. The design team includes multidisciplinary skills and perspectives.

B. User Centric Design Process

The concept of user centric design for an information product can be understood in three concentric layers as visualized in Figure 1, wherein the core area indicates the 'user' and 'user needs'; surrounding the core area lies 'the information system' that is structured according to the user needs and the outer layer refers to the information retrieval and product access.
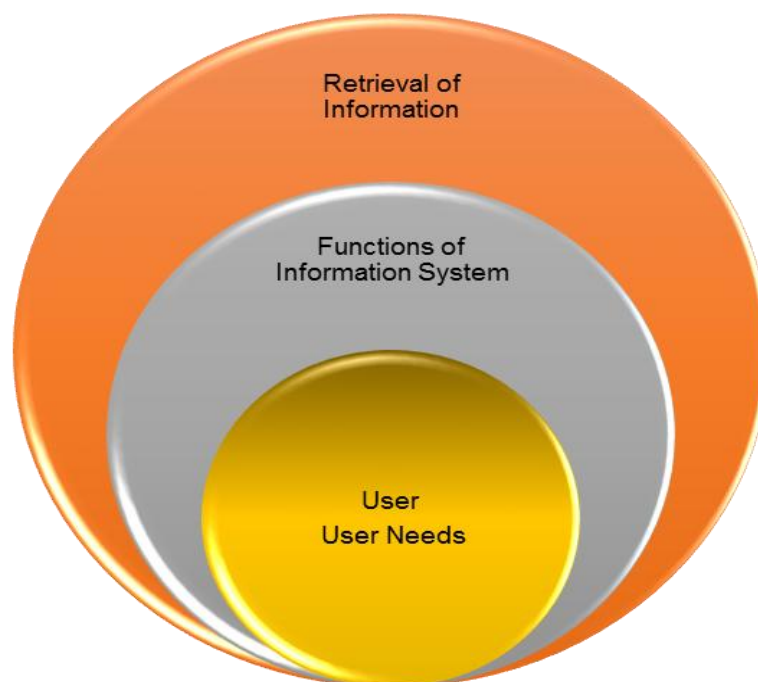

Figure 1: The Functional Information System UCD Model

Thus the 'User' being the significant component in User Centric Design Process, the method of obtaining the data about users and their needs and testing the design is also important for making necessary modifications in redesign. These 'users' actually be the beneficiaries of the product/s, even though may never have truly connected with it during manufacturing stage, but have well impacted by their design. Such users were referred as - 'indirect stakeholders' by Friedman, Kahn, and Borning (2006), who have drawn distinction between the direct and Stakeholders, wherein the direct stakeholders should have priority in the conceptualization of a design, the interests of indirect stakeholders.

3. User Oriented Library Services in Academic Environment

In the context of user oriented library services, Bowler et al. (2011) were of the opinion that "User-centred design, as its name suggests, reflects the user, typically from a cognitive, affective or behavioural point of view, as well as the social, organizational, and cultural contexts in which users function. The shift from a system-centred to user-centred perspective in LIS arose from the emergence of information retrieval systems that could be operated without the intermediation of experts and a need to understand how to better serve a new clientele of end users". Thus, due to the predominance of web, web based technologies and tools and also web 2.0 applications in libraries, made the user involvement significant in the design of systems, services and spaces.

A. Library Users

The user/s can be any individual or any organization that use the product for a specified purpose. The users may vary according the type of organization/ library and the purpose. The integrated information system that is built can generate managerial information, data for clients (staff) at various operational desks and to the targeted end users of the system. The library users vary as per the type of library, public library users ranging from a common man to a business man, researcher, students, teachers, industrialists and politicians etc., while special library users needs are limited to their domain of work. The users of academic libraries refer to - undergraduate students, post graduate students and research scholars, faculty members, visiting faculty, project assistants and other Institutional members. The users can be in the normal state of using the products and also with different capabilities and competencies - physically handicapped and visually challenged users, etc.

B. Conventional Library User Services

Dr. S.R. Ranganathan, the father of library and information science in India and also the architect of Indian librarianship described the Library as - trinity of books (resources various types and formats); staff; and users. The five fundamental laws specify those resources and other components of the library should be only designed keeping in view of the respective users. It implies that library should provide the basic or extensive facilities according to the requirements, convenience and use of their clientele (users)

- Resources (based on the objectives of organization)
- Tools to access resources
- Functional Building
- Comfortable furniture
- Tidy and serene ambiance
- Professional and non-professional staff to maintain library and services
- Line of authority, Administration, policies and rules

When print (Books, reference books, journals, maps, atlas, etc.) resources are predominant, the library services and tools designed as per user's requirements is illustrated vide Figure 2
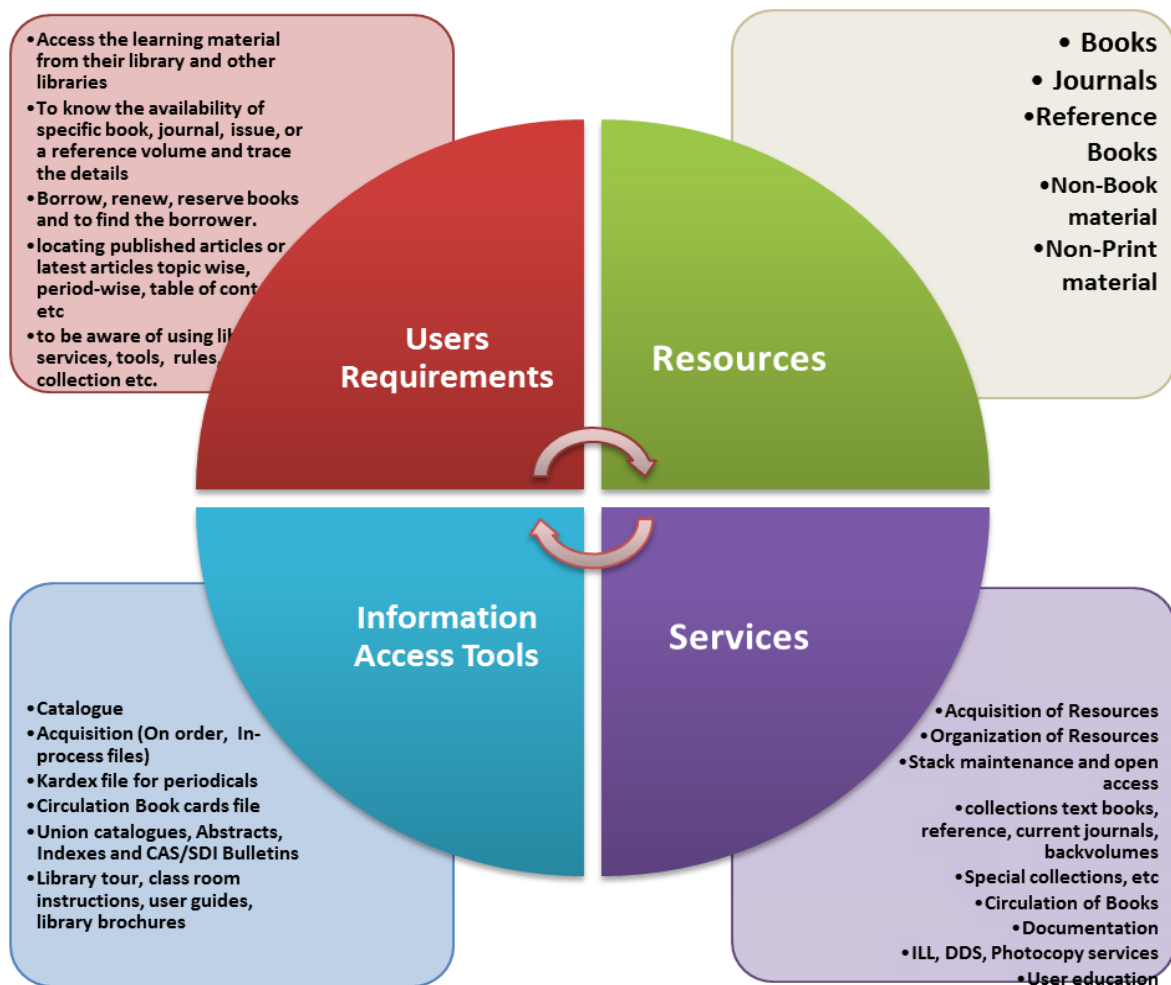
Figure 2: *User Based Services in Conventional Libraries*

C. Change of User's Requirements - Influencing Factors

There have been several factors influencing change in user's requirements in academic environment. Some of the significant factors are mentioned below.

- Interdisciplinary/multidisciplinary research
- Ever growing publications and innumerable resources
- Transformation of physical format of information due to ICT advancements in processing and information/documents.
- Use of telecommunication networks for the dissemination of scholarly information and the use of web technologies to hyperlink resources, the development of search and discovery services
- Ever upgrading ICT infrastructure with the increasing users expectations
- ICT Applications in libraries such as automation, e-publishing, e-resources, resources sharing, formation of library consortia, development of access tools for subscribed as well as free resources, arresting plagiarism, possibility of providing remote access, etc.
- Wide spread campuses in research and academic institutions
- Research collaboration among distantly working people

The ICT applications in libraries are mostly visible to users through hyperlinked online platform, especially the library's catalogue OPAC which is the gateway to library resources and also formed as user interface that will be connecting to all the integrated library automated operations. Further the information, resources and services will be passed on to the library users remotely through online library catalogues or OPACs, websites of publishers/aggregators/providers and finally the library websites.

4. Need for UCD in Academic Library Environment

The users can be expert in their field of specialization, whereas librarians are well versed with the system of organizing the information or documents for facilitating easy retrieval. User's concerns need to be included while designing the library information system. The design needs constant updating or revision by incorporating the ever-changing user's requirements. A librarian can understand the user requirements as well the organization of knowledge or concepts and therefore will be able to structure the collection, services etc. accordingly. For example, for organizing the documents in the library, their indexing, the classification scheme; the catalogue formats and the subject indexing followed by library are unknown to the user, whereas the librarian will be able design in such a way that the similar subject numbers come together so that the user will be able to get all the documents in the subject area together on shelf and also in catalogue. The tools/services so designed and developed for serious researchers or library users, when print was predominant were expensive, inadequate, and far from the reach of researchers geographically or cost-wise.

Though the traditional library catalogues of any form meet the search requirements at a minimum level, author, title, subject and keyword etc. but are not be able to inform the status of a recommended book or any other material housed in the library nor the book lent to a borrower. The advent of ICT applications in libraries and publishing not only increased the content but also laid several pressures and demands on libraries through users. Since most of the library automation software designed focusing on entry of bibliographic records in view of building information retrieval systems, are found not so compatible with regard the acquisition and other maintenance operations of books and serials and other materials, in several instances users mostly depend on manual systems to suggest or recommend for additional copies of text books, reserve, renew books etc. Users should know the list of current journal titles to be renewed by invoking a key. Similarly the different statuses of library material such as in bindery, lost, damaged, written off etc. should be displayed in the similar way. The recently added books to the collection should be programmed in a way that the books added in the current week should be automatically displayed to the user by invoking a key.

So the Library automation software should be designed in a way that meets the user's requirements by accommodating different physical formats or types of resources. The catalogue should be able to direct the user to table of contents, abstract and also to the full text of the article through OPAC. In an example of library automation, patrons need to know the books outstanding against their names which are made online.

Further, the use of e–resources is bound by the license terms and agreements of publishers and the violation of these terms knowingly or unknowingly will be treated as abuse which results in access block to the entire gateway or institution. Libraries need to commence information literacy programs to make the users aware of these fair use rules of accessing electronic resources. Presently, all most of all the institutions are able to access numerous scholarly resources through various sources (publishers or targets) and users are often constrained to get the right information among hundreds/ thousands of heterogeneous sources, though each publisher provides search interface with all the

search facilities. Libraries needs to arrange or acquire meta-search, bibliographic search or discovery services that provides query based search, in addition to the article full text databases, where users are able to search across all the sources.

Moreover, the multidisciplinary research, and ease in the creation of content lead to the generation of new concepts and terms more than ever in this electronic era. The situation has been posing challenges in the organization of concepts (by relating terms both hierarchically and horizontally) and ultimately effecting the information retrieval. Archiving and digitization activities in these current decades demand the organization of classics, rare collections and research documents etc.and also need to be displayed on HTML platform for the use of researchers.

All most all the students are currently handling internet access with small and smart devices like tablets, mobiles in addition to personal computers/laptops. Thus, information services including OPACs need to be made compatible to these small/smart devices by designing apps for them. Accordingly, most of the LIS software providers, publishers of full text/bibliographic databases are building their websites in mobile enabled form including OPACs.

The Government's perception of 'right to education' enabled physically and visually challenged users to visit libraries for their education and research purpose. They need to be equipped with altogether different setup which is compatible to them.

Ever changing information formats, mode of dissemination of information, hardware, software and networking infrastructure lay demand on the libraries for constantly upgrading information access environment according to the users' requirements, which is a challenge for librarians.

5. UCD Process for Academic Libraries

To design a user centric model applying the ISO-13407 standard in an academic library environment, it is needed to use a human centred design process, constituting the following cyclic activities.

1. Identifying the organizational goals and recognizing the objectives of library
2. Identifying the users of the product, purpose of using it and where it is used or under what context it is being used.
3. Identifying requirements of the system is very crucial for successful design of product
4. Design of solutions also should be the part of design process in all the stages of products precisely from the conceptualization to completion
5. Design implementation & completion process
6. Evaluating design or testing the design is one way the quality testing of the product, which is preferably performed through usability testing with actual users.
7. Modifying the design incorporating the user's requirements based on the feedback to achieve the target.
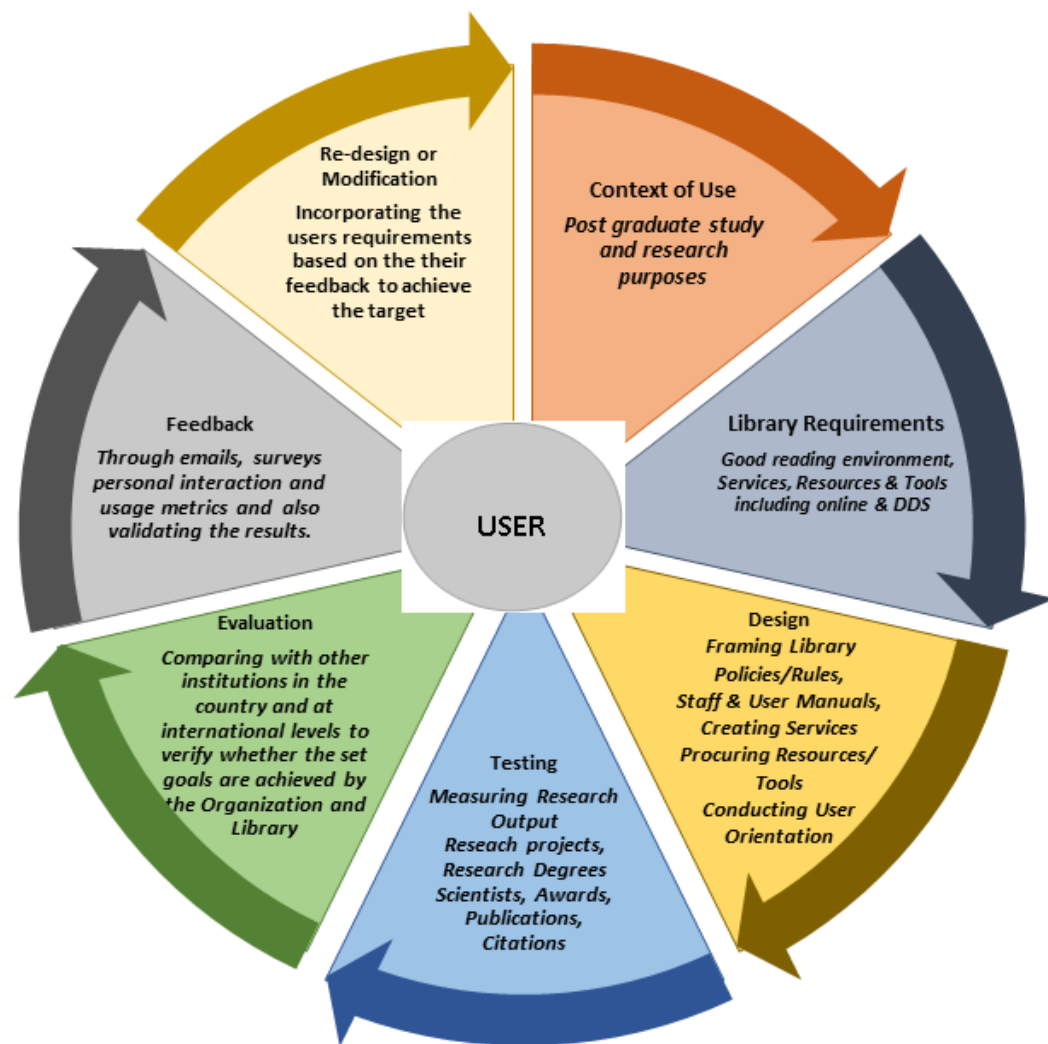
Figure 3 - UCD Process for Academic Libraries

The information to be disseminated to users is infinite and limitless. Thus the information architecture is highly significant for the design of website particularly while organizing the content and creating navigation for the content according to user's background and navigating style.

In LIS context, there have been several popular conventional and modern methods in practice for drawing user's feedback. Most of the libraries have been now relying on a complaint box at the library entrance; interaction with users; group mailing; surveys (both paper and online) and the usage data, etc. To cite an example – number of user's login into OPAC every day, number of searches made as against hits, number of transactions in circulation section for specified period and how many members visit the library every day on extended hours and on holidays, etc. Since the hypermedia is opted as the main platform for disseminating information, distributing resources, building digital/virtual libraries and to obtain feedback from users easily, several instances of applying UCD process for the design of websites and intuitive search interfaces are found in literature.

Manzari and Trinidad-Christensen (2006) applied user-centred design principles to the Library and Information Science (LIS) Website Library at the C. W. Post campus of Long Island University. The website was subjected to a heuristic evaluation and usability testing and the findings were applied for redesign incorporating the users' suggestions. They intended to list all resources and information related to connect to the main library's home page and library catalogue. An online survey was also posted on web site to update it based on user feedback. The usability test confirmed that the Web-site was designed well.

OCLC's WorldCat.org is a cloud-based, multi-institution, international catalogue. The 'User-centered design of a recommender system for a "Universal" Library Catalogue" was a joint research project with the Information School, University of Sheffield to develop the 'recommender systems' for retrieving journals, books, digital media, video, etc. User-centred design and empirical evaluation of a prototype system would provide invaluable data for OCLC in assessing the value of recommender services for WorldCat.org. Consequently the end users of WorldCat.org, effective recommender functionality will assist with information discovery within the library catalogue.

Kress and Del Bosque and Ipri (2010) investigated reasons for the user's failure to locate the electronic and print items from university library catalogues or websites by applying usability testing and quality control methods. The researchers have conducted the ILLiad analysis from the cancelled interlibrary loan requests of the years 2007, 2008 and 2009 identifying the categories available in e-journal collection; LASR and Lied Library. By using interlibrary loan data it was possible to analyse actual citations that the users were unable to find, despite the fact that the library owned the materials.

Tidal (2011) discussed the creation process of a user centred library homepage by conducting a survey and a usability test before shifting their Ursula C. Schwerin Library's library website to a content management system. The survey consisting of 24 respondents and the data from usability testing gave very useful feedback. So the alterations could be made based on first round usability test while transitioning the website to Drupal CMS reducing the number of links on home page and also later to make the site more users centric.

Sadeh (2007) explored the need for designing a new search interface for Ex Libris as a solution for the discovery and delivery of library collections as per users' expectations. He observed the following users' needs and expectations of the design of the interface. The information displayed on the screen should be minimal; the work flow and search options should be appropriate; Queries can be as simple or as complex as needed; should be supporting post-search tools that help users focus on relevant items within the result list; and also will be able to suggest alternative routes for finding relevant information; and also does not need training for searchers. It is found that the search interface is user friendly and all the participants in the usability test could manage with marginal help and time.

Guo and Pei (2011) applied both qualitative and quantitative methods to assess user's requirements. The results were analysed through cluster analysis, applying user testing combining with heuristic evaluation, the library website was evaluated and constructed by user-centred design methods such as - reducing the number of categories; error rate and help-frequency and thereby improving the user satisfaction significantly.

Sommerville and Brar (2009) described the application of user-centered and EBL (evidence-based librarianship) to enable the end-user's involvement in the digital library project design and development. From 2003 to 2006, user-centred design guided increasingly by the complex human-computer interaction projects at California Polytechnic State University to change the project from

library centric to "user centric." Further it is found that purposeful conversations aimed at learning from user-generated evidence enrich the planning process for digital library projects. Practical implications – Collaborative design assumes that enabling interfaces, systems, and environments are best designed and developed inclusively, with and for beneficiaries. Towards the end, practical guidelines are offered to enable replication of this approach, which depends on user produced and interpreted evidence, in other organizational settings.

6. Implications of UCD on Users Information Services

The concept of UCD has brought drastic changes in information collection, processing, packing and information retrieval in simpler and easy means. The net generation users are becoming proactive in retrieving information in different formats without physically visiting the library because of remote connectivity and also the publishers new ways of publishing and delivering the information with added updating services. The libraries also have been providing the online information to users making it more users centric. The following aspects need to be looked upon while discussing the implications of UCD.

A. Library Automation

The automation not only eased various lengthy and tedious operations of the library, but also facilitates many more approaches and information to users, by building the database of bibliographic records. Automation of each module is expected to easily meet the basic requirements of library users and also been able to fulfil various other needs not met during manual processes.

- Acquisition module
- Processing (Catalogue or Creation of bibliographic records) module
- Serials module
- Circulation module
- Documentation services

Library catalogue is the inventory of library material or resources. Its physical form has been transforming from register, card during print only period to online and also online public access catalogue (OPAC) accommodating all types of resources in all the formats.

The conventional library catalogues had limited approaches for users to reach their information such as author, title, series, subject headings, reference, cross-reference and added entries. The author & subject analytical entries prepared to meet the user's approach to individual chapters/parts of composite books, made librarians to do lot of clerical jobs and at the same time gives a very little understanding to users. The application of database management systems to library bibliographic records enable to sort and index all the keywords, which facilitates multiple search opportunities to library end users through modern OPACs. The online catalogues evolved in integrated automated library systems have been including many more services over the generations. In integrated library automation system each of the subsystem (module) is related to the other subsystems and contributes to the user information on the whole, e.g. an acquisition subsystem needs to provide interfaces to cataloguing. All the subsystems are well connected to built-in cataloguing subsystem to draw data for their sub-module activities while producing the information or data required for users.
The design decision by library automation software developers will be primarily based on the quantity as well as the type of database and information retrieval needs. The database is reflected and accessible to users through catalogue which is well optimized for efficient search and retrieval.

Online Public Access Catalogue- As mentioned above, through OPAC users will be able to search the library collection of books, journals and other material

- By author, title, subject etc. approaches or any keyword related to it.
- Find the status of searched item, whether available on shelf, or in issue or in bindery or damaged or withdrawn
- To find whether any digitized copy of a book or full text article/journal available online and get linked to the respective soft copy
- To find the searched item by location/s
- To know the availability of a specific journal by title/ISSN or a specific Issue or back volume of a journal
- Latest Issue of a specific journal
- View or download the list of books / Journals on a specific subject
- Additionally users should be able to self-register, modify the contact details, enter the topics of interest etc. and will be able to get the following advantages as authorized user.

Acquisitions Module- The Acquisitions Module as in integral part of library automation software should be able to include the following in user interfaces -
  - OPAC interface should support an authorized user sending recommendations for books, journals, or any other material for purchase
  - OPAC should display query acquisitions files – to track the status of recommended item, whether ORDERED, or RECEIVED or IN PROCESS
  - Faculty may recommend items to be kept on reserve for a limited period /semester/for text book collection.

Automated Circulation Module- The automated circulation module in many LIS software is facilitating the following in user interface available through OPAC and enables the user to –
  - Search member records by names, member IDs
  - Retrieving information about borrowed items on loan, over dues if any to clear etc.
  - To reserve books under loan and receive the notification regarding the check-in status of reserved book
  - To renew books online
  - Reporting of loss of book/s and loss of ID card
  - Payment of cost of lost book or lost ID card and get the receipt
  - Payment of overdue charges if any, online and get the receipt
  - By adding email address to patron records, users can be notified through mail regarding their borrowed items, over dues, etc. at specified intervals
  - Through adding small devices like additional monitor towards the user (opposite) side with the help of split connectors to computers at circulation counter, an added value service also can be provided to the users. Thereby the patrons would be able to view their transactions while issuing or returning the books.

Automated Serials Module- The automated is the basis for not only creating serials database with holdings but also for generating union catalogue of serials, i.e. serial holdings pertaining to many libraries and several article based services. These services can be designed by coordinating journal records, locations of institutions, and articles data with patron profiles.
  - Availability of article/journal in other libraries
  - Availability of articles on a various identified topic/s (CAS service)
  - Articles related to the interests of identified members (SDI service)

B. Electronic Publishing, Electronic Resources and Software/Tool

- Possibility of accessing full text remotely from publishers servers
- Single/unified search across databases, publisher's resources, over a period different types i.e. journal articles, books or book chapters, a piece of information, or data table, an image or a formula
- Basic Search or keyword search
- Advanced search with multiple options,
- To enable federated search, use of Boolean operators, filters to narrow the search results without leaving the search results page
- To be able to track spelling or grammatical errors in the text
- Facility to verify the similarity in the text with already published content and be able to arrest plagiarism or copy paste culture in original writings.
- Ability to assess the usability of an article or a book or a chapter or an author by reading the abstract, table of contents, reviews and by the citations recorded
- Able to view citations and track the duplication, development and collaboration in research.
- Ability to establish the credibility of an author/institution/journal or book by way of citation based measures such as h-index, etc.
- Capacity to provide meta-search or discovery services to be able to search all subscribed as well as free resources at once with a single interface
- Ability to apply semantic technologies to connect the related concepts, methodologies, creations etc. in information retrieval.
- Some libraries provide specially designed facilities for physically disabled and visually challenged users in library buildings right from the entrance, seating arrangement and organization of collection to purchase of special software for accessing online resources and learn from them.
    - Library building is structurally designed in a way that the physically disabled users comfortably move on ramps with wheel chairs and lifts to easily climb the linear structure of building. A separate rooms/halls for such students are being provided organizing their exclusive collections (especially Braille), personal computers loaded with required software, printers within their reach.
    - Special programs for such students like competitive tests and reward can be encouraging.
    - The material kept on the top rows should be reachable by arranging small step-up stools
    - Since most of the current literature and information is available online, it will be made usable to visually challenged students by arranging the text to speech software, screen readers etc. in exclusive personal computers e.g. JAWS (Job access with speech) screen reading programs, Kurzweil TTS (Text to speech software) programs and printers etc. The different software compatible to regional languages should be explored and arranged for such deprived students.
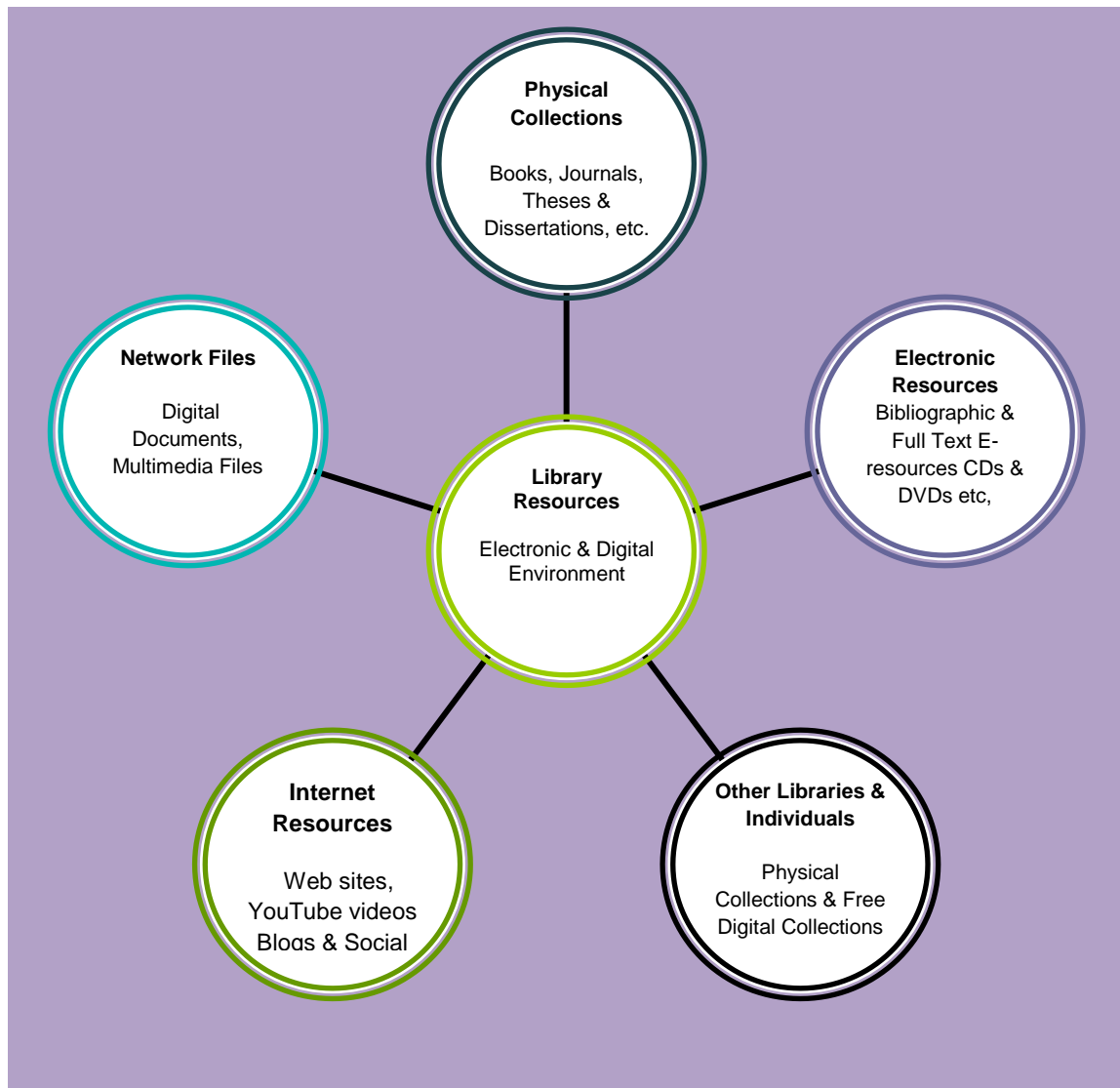
Figure 4: *Impact of Electronic and Digital Resources to Include Concepts, Data, Software/Tools*

C. Digital Libraries and Institutional Repositories

Stuart Snydman of Stanford University explained in digital libraries blog that the university library followed a user-centred approach in building portals for their digital library systems and services. Feedback obtained through interviews with scholars and faculty formed as a reference for designing and validating the website that supports both interaction and technical design. The organization of content and functions on a website were represented by block diagrams visualizing the relationship between site pages, content types and functional activities. They made a clear distinction between interaction design and visual design, in which interaction design emphasized on information architecture, layout, navigation, and content organization etc.

Further, an exclusive server can be arranged for digital library to upload all digital documents in searchable format and necessary metadata serves well for retrieving the relevant documents or information easily through separate search interface or commonly through OPAC without missing even related items. Schopfel Joachim (2013) mentioned "five specific characteristics that provide

scientific excellence to the ETD repositories – 1) quality of content; 2) metadata for the description of the content and context of the ETD (Electronic theses and dissertations) files; 3) format that is searchable and open for users and should be suitable for long-term preservation and intelligent exploitation of the content; 4) interoperability – for more visibility of the ETD, repositories should be networked at regional, state wise and international levels and also interconnected; and 5) in addition to the search and browsing services, some practises should be complimented using social media tools, federated tools and sophisticated discovery tools, collecting usage statistics and observing citations, videos and presentations on theses, printing in book format on demand, options for copyright protection & licensing, preservation in multiple copies etc. He also stated that the above best practices adopted by the librarian can add value to ETD repositories and make the services user centric with the least, flexible and innovative effort.

D. Information Literacy (User Education)

The library plays a vital role in educating the users, especially in academic institutions, where the user's population is large and be regularly floating every year. These user education programmes of earlier times have taken new shape into Information literacy with the advent of electronic resources, tools and services and also latest information retrieval systems. Usually such programmes will be conducted to newly admitted students and research scholars to explain about library rules, organization of collection, services and use of library tools and accessing the resources etc. Special orientation will be conducted by the library in the specific occasions or while introducing new information products to make the information/document centric to library centric. Though users are now familiar with different types of online resourses, they still need guidance from the library regarding the –

- I.P authenticated e-resources under copyright, fair-use terms of publishers, the way to register for databases access, wherever it is mandatory, for example Scifinder scholar, CMIE etc.; the availability of remote login, wherever publisher allows.
- Moblie applications especially for the use of webOPAC.
- Existing networking infrastructure for accessing e-resources and online based tools, like internet and OPAC terminals, Wi-Fi, importance of secured network in case of accessing valuable and highly expensive copyrighted material in electronic form etc.
- Further the users need to be explained about the benefits of registering for databases such as - receiving alerts regarding new publications in the selected area of research work i.e. article, new journal or a chapter or about launch of new product or a trial access.
- Researchers can even be trained to search and retrieve the required information or document precisely without missing relevance.
- Researchers can be taught about the value of citations, citation styles explaining about the plagiarism the research misconduct, researcher's gateways and their use of relevant tools.

With the increasing use of web based resources and tools for various purposes in academic and research environment, the networked users in the present era can be motivated to be aware of the policies/rules of the library and resources by prominently displaying on the library web page, without making much effort to contact the library personally during working hours / days and also access the resources. Thereby the library users will be able to access university's authenticated web resources on or off campus anywhere, anytime as they are connected through the campus-wide Wi-Fi, remote login facilities created for users.

These training sessions on the use of the library with audios & videos, online interactive sessions can even be posted on library websites for user's information and also to get the feedback from them. Surveys can be posted online to take users feedback on any product, resource or service.

- Are you satisfied with the Library services?
- Do you get the information easily & speedily than some years back?
- Do you feel that the library has shifted from document centric to user centric?
- Are you familiar with the web OPAC?
- Do you need training in the use of online resources?
- Are you able navigate and get the relevant information online?

Figure 5 - E- Interaction with the User (modified from Koerber, 2015)

Apart from library tours, user guides and instruction classes, libraries can even hyperlink the videos of instructional lectures and publishers tutorials to their websites for users to self-learn the various processes involved in information retrieval. A self-directed training can be made simple by hyperlinking the modules to library's website or Intranet, or as multi-part online courses. Moreover, such programs can be useful to train staff as well as patrons.

E. Library Websites

Since, the hypermedia has become prominent platform to display of resources as well as disseminate the information emerging in variable formats, libraries are gradually transforming into virtual libraries providing remote services and resources to widely distributed users across the campuses. There is a visible difference in the conventional static library websites, when users are not just satisfied with infrequent updated text by the site administrator, but requiring automatically updated information in dynamic mode. It is possible by embedding the respective web applications and scripts in Webpages. Further, the latest content management systems e.g. Word press support the user's interaction with websites like providing search interface, submitting feedback/contact us or ask us etc. and connecting to social networking as well as researcher's networks.

Moreover, the inclusion of web 2.0 tools such as library blogs, chat services, ask the librarian to library website or online catalogue will speed up the communication between the user and library. It will not only setup quick library contact service to the user but also get necessary feedback from users, which ultimately ignite the launch of new services or redesign of existing services.

7. Conclusion

"Google can bring you back 100,000 answers, a librarian can bring you back the right one"

- Neil Gaiman

It is pertinent to mention that most of the research scholars or faculty does not know how to fully tap the resources of the library. In this context if the role of librarian in managing the resources is considered as the most significant only when it is made user centric by flashing the new arrivals,

training sessions in the use of the web OPAC & online resources and document delivery services etc. In the recent years the libraries are even involving in screening theses & dissertations before submitting with the similarity index so that the researchers, institutions know the value and originality of the theses. This service is a value added service to the research output. In the light of novelty of the services provided in the present context in the established libraries it is never the less to mention that the libraries are becoming more and more user centric and user prone. The role of librarians and libraries in academic environment lies more in making the users to understand the resources/ services and enable them to achieve competency in tapping the resources whether print or online. Universities without research is meaningless so also libraries without users. Hence the importance of UCD.

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