ICULA 2010 Conference Proceedings

University Librarianship : an academic challenge & an opportunity

Chief Editors Wathmanel Seneviratne Chaminda Jayasundara Manoja Samaradiwakera

University Librarians Association Sri Lanka

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University Librarians Association (ULA) Sri Lanka

Conference Proceedings

ICULA 2010

6th International Conference of the University Librarians Association 14th & 15th July 2010

'University Librarianship: an academic challenge and an opportunity"

Chief Editors

Dr. Wathmanel Seneviratne Dr. Chaminda Jayasundara Manoja Samaradiwakera

Ceylon Continental Hotel Colombo Sri Lanka

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Proceedings of the 6th International Conference of ULA held from Proceedings of the original formation of the first fir

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ISBN 978-955-1359-03-4

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Lamana Printers & Publishers 749, Avissawella Road, Wellampitiya. Tet: 011 - 2572297/ 2572515 Fax: 011-2547662 Email: lasprint@sltnet.lk

PREFACE

Welcome to the proceedings of the 6th international conference on Academic Librarianship. This volume comprises the full length contributed papers and abstracts presented at the International Conference of University Librarians Association (ICULA) 2010 held on 14th and 15th July 2010 at Ceylon Continental Hotel, Colombo, Sri Lanka.

We are particularly proud to demonstrate academic librarianship as an academic challenge and as an opportunity in an international context in these Proceedings. Main aim of this conference is to bring renowned and qualified LIS professionals, researchers, academics, library technologists and other professionals, those who work collaboratively with librarians in varied organizations on one arena, for the presentation and exchange of their thoughts, views, and experiences on concepts, trends and practices of present-day academic library scenario. Also, it is aimed at providing a platform for pragmatic evidences, real-life case studies as contribution, to knowledge, challenges faced and opportunities obtained and assessment and evaluation of the prevailing circumstances of academic librarianship in the view points of the researchers and/or professionals. The conference is also intended to offer a stimulating environment to encourage discussion, professional dialogue and exchange of scholarly thoughts leading to endorsement of academic librarianship in developing countries in a broader spectrum.

All the research papers, and abstracts accepted and printed in these proceedings were blind reviewed, without the author(s) being identified, by two experienced LIS professionals cum researchers who followed strict guidelines that have been refined over a number of years. We would like to take this opportunity to thank the Conference Committee, the conference organizers, the paper reviewers, paper editors and the proceedings editors and the printer for their efforts in producing yet another landmark in the milieu of academic librarianship in Sri Lanka.

Last but not the least we would like to acknowledge and convey special appreciation to the session keynote speakers, lead paper presenters and the speakers, who delivered theme papers, for their valuable contribution and the distinguished delegates for being with us and sharing their thoughts and experiences, in ICULA 2010 in Colombo.

Dr. Wathmanel Seneviratne Dr. Chaminda Jayasundara (Co-Chairs - ICULA 2010)

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KEYNOTE ADDRESS

University Librarianship: an academic challenge & an opportunity

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University Librarianship: an academic challenge and opportunity

Ragavan, S. Srinivasa¹

Library and information science in the present knowledge society has a number of great challenges to over come as it had been come across more than a century since the inception of modern school of library science thoughts promulgated by Melvil Dewey, Dr. S.R. Ranganathan and their contemporaries. It may be of indexing, classification, collection development or documentation and reference services known as reference information system from the industrial era. It is evident that any new technology that may be of storing data in to meta documents and micro forms like analog photography and multimedia online file formats or processing of information form micro films to barcode technology, CD networks or to the networked access storage, higher academic libraries were forefront in adopting and practicing the innovation.

Information as the Key

Librarians were considered to be the sole agents of knowledge organization and information transform over a long time spell of a century. The advent of ICT and the new born theories of management and globalization have developed the concept of information management as a base for all communities and disciplines. This has been posed a great challenge to the librarians' communities of the present era to distinguish themselves from the management and IT professionals in information organization and dissemination in the digital environment.

As the generation of information and its transformation has become more viable with web technologies and that has made web access as a culture among the general public in making use of all facilities including governance has posed a threat to the librarians' fraternity to claim themselves as leaders of information management. This has become more complex and challenging at higher academic and scholarly information environment where the knowledge generation is gaining momentum day by day and minute by minute.

Various studies shows that the information generation and transfer in the quantum of the digital universe in 2007 at 2.25 x 10^{21} bits (281 Exabyte or 281 billion gigabytes and by 2011, the digital universe will be 10 times of the size as 2810 Exabyte and the worldwide usage of internet data is about 1803 million users and Asia alone amount 43 percentage of internet usage with 764 million users.

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Technology and Libraries

It needs new methods and technologies like XML, Semantic web and cloud It needs new methods and tecription, retrieval and storage. Knowledge is being computing for appropriate description, development of any nation development of any nation development of any nation development development of any nation development deve computing for appropriate description, development of any nation due to the deciding element in socio economic development of any nation due to the the deciding element in socie to the library professionals in the universities as multi-following reasons has made the library professionals in the universities as multidimensional intellectuals and managers.

- ICT as Strategic Force in higher education
- University. Virtual Virtual Classrooms, Virtual Laboratories
- Wireless networking
- E-learning and Online discussions
- · Every student/teacher has access to the updated knowledge
- Web as a platform and culture
- Participation and Sharing
- Convenient and Accessibility

Qualities of University Librarians

- Generation E-Content and Management
- Virtual Libraries and Virtual Learning concepts
- Students and teachers have more web space
- Higher level computing facility in terms of storage, process and access
- Information Consumption is high
- Users and Value
- Harnessing Collective Intelligence
- Web technologies

University librarians are to be a model of having both classical and modern knowledge players with the following essential qualities to satisfy the customized and personalized information requirements of all the stakeholders of the changing scenario of higher education with globalize practices.

- Strategic planning, development of collection, programmes and services
- Philanthropic cultivation and stewardship
- Managing IT and digital resources
- Managing budgeting and financial elements
- Capabilities in handling human resources and making collaborative ventures and policy ventures
- Institutional commitments and diversities among the user communities
- Understanding the challenging and opportunities facing research libraries
- Qualities in obtaining funding through grants, contracts with the strong collaborative skills with an effective spoken person and prolific writer
- Familiar with techniques of librametry and library assessment and
- Designing of information literacy programmes to cope with pedagogical changes.
- Quality Assessment and Technological forecasting
- Contributing to the overall development of the University by joining the team of deans and directors

Emerging Technological Challenges

The application of the mentioned tools and techniques pose a need for the university librarians to make use of these emerging technologies for information delivery and access

- Blogs
- RSS aggregators
- Vodcasts
- Instant messaging
- Institutional Repositories
- Social Networking
- Virtual Library services

- Wikis
- Podcasts
- web conferencing
- Consortia
- Restricted Remote
 Resource Access
- Semantic web
- Cloud computing

A brief description on the application of the above technologies for knowledge management in libraries could trace the new challenges and opportunities in university libraries.

OPAC 2.0: application to libraries

OPAC 2.0 tries to take advantage of the users' potential to enrich their contributions and thus increase the catalogue's value.

- Allows for more than just the traditional information usually included in catalogues, like the covers, the index and a summary. It also includes the organization of the information by facets and groups.
- Each user can personalize the way they view the OPAC: Organize their registries in folders and assign tags, configure the searches that they perform regularly and subscribe to a RSS to get any news on the topic and enables the creation of groups of users with similar interests, allowing for different levels of relationships between them by establishing different levels of privacy. Allows for the link to external services, for example with bibliographical reference managers, purchasing books

Social Networks: application to libraries

- Libraries can create a page to reach to new users. Social networking could enable librarians and patrons not only to interact, but to share and change resources dynamically in an electronic medium.
- For building network among the interested group in discussing the common interest.
- User content can be added to the library catalogue, including users' book reviews or other comments.

Blog: application to libraries

- Blogs serve as a platform where the users can file their concerns, queries and suggestions regarding the services and activities of the library,
- Uers can request the resources and thus help in relevant collection building.
- Blogs can be used as tools for marketing of the information as well as the library.
- Can be used as tool for posting Minutes of the Meetings and follow ups and blogs can serve as discussion forum.

Wiki: application to libraries

- Wikis can be used for social interaction and discussions among the librarians & users as well.
- Promotimg professional development with the creation of forums to exchange ideas on specific areas.
- Wikis can also be used by the users to share information and enhance the content, and a record of these transactions is archived for future reference.
- Reference resources wiki can be built by adding the existing content and creating new
- content

Social Bookmarks: application to libraries

- Simplifying bibliographic distribution lists, users can describe them by providing specialized knowledge.
- Elaborating link services recommended from specific fields of knowledge.
- Sharing resources with other users who are using them for research.

RSS (Really Simple Syndication): application to libraries

- New titles announcements in a range of various subject areas.
- Librarians can subscribe to RSS from the sources for compiling their customized alerts.
- Communicating about the library happenings and events to the user community regularly by alerts.
- Enhance Library Instructions on new products and tolls used for information process like web technologies abd program materials/courses by integrating appropriate resources.
- Announce availability of new research and learning opportunities in various academic/ research organizations and integrating library services through RSS feeds.

Instant Messaging (IM): application to libraries

- Instant clarifications for the Questions from users and vice versa.
- Online meetings and to provide virtual reference services.

Podcasting: application to libraries

- The library that works hard to produce audio content such as recordings of programs or library tours, podcasting can be an effective means of making that content more widely available.
- Podcast highlights about new resources
- Podcasts enable librarians to share information with anyone at any time.
- Podcasting can be a publishing tool for users and librarians' oral presentations.

Tagging: application to libraries

- Tagging can be applied to the LMS for editing the subject headings from the user point of view and there by enhancing the indexing and relevancy of the searches, making the collection more dynamic.
- Tagging would greatly facilitate the lateral searching.

Concluding Remarks

University Librarians' role has been emphasized even during Ranganthan's days in a more comprehensive manner as equal to the head of the institutions in extending and supplementing the key functions of the universities such as academic, research and extension .Present Knowledge society throw number of opportunities for higher academic librarians as teachers in designing knowledge literacy program and evaluation of resources; as technocrats in adopting newer technologies ; as Chief Executive in recruitment, training, developing new projects and managing the operations; as a researcher in identifying and new theories and solutions in providing services to a large user group from a range of academic campuses, consultant of information systems, Fund raiser in taping the resources from industry and research bodies and as quality expert in assessing the user behaviors and improving the facilities for optimum use. Exploring the opportunities for collaborations and participation of academic and research programs across the globe, peer interaction, societal participation in the region as a leader with values, all these necessitate librarians to be more alert in observing the environment and updating themselves with the current changes that envisioning the future needs.

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PART I - THEME SEMINAR

"University Librarianship: an academic challenge and an opportunity"

Session Chair - Prof. L.L. Ratnayake

Director, IRQUE Project, Ministry of Higher Education

Lead Paper - Dr. P.V. Konnur

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Lead paper

UNILINK: a network of university libraries in Karnataka (India)

Konnur, P.V.¹ and Prabhudev, N.²

Abstract

UNILINK an autonomous NGO developed by Vice Chancellors of all the Universities in the State of Karnataka (India) to operate as a cooperative venture among all the academic Libraries in the State. This paper attempts to profile the structure, plans and projections of UNILINK and traces the advantages that can be gained through the network for the Faculty, Students and the participating colleges.

Introduction

The role of libraries in the 21st century has expanded beyond that of preserving recorded knowledge and providing access to it. They are now increasingly being seen as knowledge partners and facilitators, especially in academic environments. This role has become possible since libraries have embraced new technologies on the one hand and have leveraged their understanding of relevant sources of information on the other. However, the schools of Library Science are yet to reach up to the expectations of the modern society.

Academic institutions in India have still need to realize the importance of libraries and the proactive role that they can play in the emerging knowledge society. The National Knowledge Commission of India in its recommendations has clearly spelled out the need for libraries of all kinds to modernize and become the focal point of teaching, research and development. We believe that such a role can only be realized by:

- Encouraging libraries to invest in new web-based Technologies,
- Re-training of librarians to make effective use of new Technologies,
- Networking academic libraries, e.g., university libraries with affiliated and constituent college libraries and then across such academic library networks.

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The Study Group on Libraries of Karnataka State Knowledge Commission has also come out with the following key issues for the consideration of the Government of Karnataka:

- Networking and Resource sharing among University and college libraries.
- Creation of a Registry of Research output of Universities.
- Establishment of learning and self-study material for career and skill development and Facilities (Skill building Laboratories / Language Laboratories etc.) as part of the library's information service activity.
- Digitization of Rare Books and publications of Universities.
- Establishment of common Repository for less used books in Academic Libraries in the state of Karnataka.
- Development of Common web portal for the benefit of all the Academic libraries in the State.
- Creation of Registry of on going Research in Universities
- Preparation of a Manual for Common Standards, Policies and Procedures for Academic Libraries in the State.
- Creation of Database of prescribed Text Books of all Universities
- Role and Responsibilities of University Libraries towards the Libraries of Affiliated Colleges

Some of the above mentioned goals can be achieved initially by developing a Network of University Libraries in the State of Karnataka. This will include networking of all University Libraries in the first stage and all affiliated colleges of different Universities in the second stage.

In addition to the automation and networking of libraries, it is also necessary to develop the capability for students and teachers to access carefully identified full text resources, learning objects, courseware and other objects that are available on the web. The proposal is also for the development of a Knowledge Portal application that libraries can configure to provide access to needed but distributed resources. A brief introduction on what is happening in the global and national scenario is mentioned.

Global Scenario

• Networking libraries under a cooperative model is an established global practice. University Libraries in rest of the world have networked well and gained benefits of resource sharing for several decades now.

- American University Libraries have networked through a library cooperative leading to the creation of WorldCat, a catalogue of all the books and journal holdings in 10,000+ universities and colleges in US and several from rest of the world.
- Through a PPP model of networking, American Universities are accessing to the complete collection of all the Ph.D. Theses and Dissertation of all their Universities since 1880.
- There are similar initiatives in every major country in the world.

National Scenario

UGC initiated a project in 2003 for providing access to a few thousand e-journals from major publishers under a consortium model. INFLIBNET, an Inter University Center of UGC, is managing this project. Through this project, UGC has also created a facility for sharing journal literature among all major Universities. Bangalore University is both a participant and a beneficiary of this project.

ICAR has initiated a pilot project called E-Granth for Library networking twelve Agricultural Universities and research institutions. University of Agricultural Sciences, Bangalore, is a member of this project. ICAR plans to extend this project to the entire agricultural education and research sector.

There are a few such major projects actively pursued by various academic and research agencies.

Need, Importance, Architecture and Benefits

Though there is a wealth of resources on a host of subjects (in English, Kannada and other languages) in all University Libraries in the state of Karnataka (India) and Affiliated College Libraries, the situation today is as follows:

- There has been no means, so far, for students and faculty in these colleges to benefit from the widely held collections.
- A sizable user population, particularly in the rural regions served by the Universities, do not have access to useful resources since their college libraries do not as yet have eclectic collections, many of them having been started only in recent years.
- There is considerable avoidable duplication of resources since the University libraries and the college libraries are not aware of the resources of each other.
- It has not been possible for the libraries to share expensive resources.

- Equally, there has been no concerted effort to develop cooperative acquisitions policies especially for costly serials.
- Libraries are increasingly under financial pressure and acquisitions budgets in real terms are not able to cater to the demands of all categories of users.
- There is a paucity of trained library professionals at the University and college libraries.
- Many of the current library professional staff require to be retrained in using newer technologies, particularly web technologies and how to utilize resources on the web for the benefit of students and faculty.
- Not enough resources directly useful to the students and faculty, e.g., Learning Objects, lecture notes, path finders, etc., are available to students.
- Newer types of materials that are required by students and faculty are not described sufficiently enough in the BU and college libraries.
- Libraries both in Universities and the colleges require to embrace standards and technologies that are relevant to developing digital library paradigms. At present, there is poor understanding and use of contemporary metadata and interoperability standards.
- Libraries have become marginalized due to the easy availability of resources on the web and the trend to use information that is easy to obtain rather than relevant and validated can be counter-productive to the development of a healthy and inquiring body of students and faculty. Only libraries with good collections and ensure that such a trend is reversed.

Prerequisites for Participating Libraries

- Easy access to information about resources available throughout the libraries in Universities and colleges in Karnataka State.
- Easy access not only to metadata but also to the full text of important materials.
- Easy access to learning objects both for students and faculty
- Better sharing of resources and greater exchange of data and information among the different libraries.

Until the 1990's it was considered adequate for libraries to automate and make their collections available online. Today, however, libraries must not only automate to enable better efficiencies but also network if resources are to be made accessible equitably and shared efficiently for the benefit of students and faculty across the University. Fortunately, An academic library network is possible to be built cost-effectively using web-based technologies and this project outlines a plan for such a network

UNILINK (India)

Looking at the need for networking of academic Libraries in the state, the Inter University Board of Karnataka appointed a three men sub-committee to prepare a plan for developing academics Library Network in the state. The sub-committee met on and decided to hold a meeting of all Vice Chancellors, Registrars and University Librarians of all the University in the state.

Accordingly a meeting of all the Vice Chancellors, Registrars and University Librarians was convened on 28-29 December 2009. The meeting decided to form the state level network with a name "University Library Network of Karnataka (UNILINK) and register the same as an NGO, so that, the UNILINK can function independently. All the Vice Chanc3ellors will be the permanent members along with the nominated members among Registrars and University Librarians.

UNILINK Objectives

- 1. To network knowledge resources and repositories in the higher education and research institutions in Karnataka.
- 2. To act as information management consultants to member institutions.
- 3. To promote and facilitate access to and sharing of these knowledge resources among member institutions.
- 4. To develop services and infrastructure common across the libraries in the member institutions to facilitate cost-effective management and utilization of library resources.
- 5. To develop and conducting user education programs to spread information literacy and to promote better utilization of information and knowledge resources in the member institutions and their libraries.
- 6. To promote and initiating R&D activities in the development of information products and services for the collective benefit of member institutions.
- 7. To develop e-publishing systems and infrastructure for promoting wider distribution of and access to currently available university publications and future publishing programs.
- 8. To promote Open Access Publishing initiatives for scholarly publishing across the Universities.
- 9. To develop technical and professional competencies among working Information professionals.
- 10. To evolve standards and guidelines in techniques, methods and procedures, and promote their adoption in actual practice by member libraries
- 11. To develop and initiate programs leading to building leadership and excellence.

- 12. To develop Unlink as a self-sustainable organization by generating adequate revenues through the services provided to member institutions and other potential beneficiaries
- 13. To explore development and growth opportunities for UNILINK through Public Private Partnership

UNILINK Programs

- 1.Development and maintenance of the Union Catalog of all learning resources available in participating member libraries to promote shared-cataloguing and resource-sharing through inter-library loans.
- 2.Development of an information system for electronic submission, management and access for the Ph.D. theses and dissertation.
- 3.Digitization of the publications of Universities and development of ecommerce model for their marketing and distribution.
- 4. Digitization of rare books available in the participating member libraries.
- 5. Creation of a database of prescribed/recommended/ books and monographs.
- 6.Development of Common web portal
- 7. Creation of a Common Institutional Repository of Research Publications.
- 8. Cooperative acquisition of e-resources (not covered under UGC-Infonet Program)
- 9. Establishment of common repository for less used books
- 10. Creation of a Registry of ongoing research
- 11. Creation of a database of experts and expertise available in the member institutions.

The Salient Features of the Network Architecture

- The prime aim of the network is to link the resources of University Libraries in Karnataka State and build the union catalogue. This will enable the resource poor libraries to help their users with complete information. At a later stage this can be extended to include the universities' affiliated colleges.
- The metadata resources of the all the Universities in the state will be known to all students and faculty in the entire network via the Union

Catalogue database that will result out of the network with the above architecture.

- Newer types of materials (web resources, multimedia, tutorials, learning objects, lecture presentations, full text of reference and costly materials) can be selectively acquired and made accessible to all stakeholders of the network.
- The library network will enhance the value of the different libraries to the academic community as such a network can truly participate in the teaching and research activities of the Universities and other colleges more effectively than at present.

However, it is necessary to state that any such effort will require a commitment on the part of the managements of participating institutions.

- to equip their libraries with suitable computer hardware (where such facilities are not already there) and make available reasonably good access to the Internet at the different libraries
- to equip their libraries with the means to make copies of articles and/or other documents that are required
- to ensure that their library resources are made available to any other user in the network on demand, subject to well defined rules for the sharing of hard copy as well as photocopy services

Benefits to Target Audiences

The benefits that are foreseen to the different target audiences from the proposed network are as follows.

Students

- Students across the universities and affiliated colleges have wider access to resources.
- Learning materials (created by faculty of Universities or other colleges or downloaded proactively by Network staff from the Web) can be put on the network and will become accessible to all students of the same subject across the network via the web
- Resources outside of the libraries (e.g., free full text reference books) could be made accessible.

Faculty Benefits

• They also have knowledge and access to resources across the network and beyond

• They can make their teaching materials (lecture notes, presentations, tutorials, specially created resources of the Distance Education department) available to other teachers and students in the network and also benefit from that of others who contribute their teaching resources.

Libraries of Universities and Colleges

- Better efficiencies because of automation
- Possibility for new services, hitherto not possible
- The Union database that will be developed in the network will have better quality metadata such data can be downloaded from free sources on the Web
- Libraries can simply share metadata instead of duplicating their work
- Costly resources are better possible to be shared.
- Training provided to library staff at BU and colleges will update skills to enable library staff to handle newer web-based technologies and resources for the benefit of the academic community.

Project Milestones

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In order to achieve the goals and objectives of the Project, the following milestones have been identified.

Designating a public domain server by IULC on which the server side software can be installed and ensuring that such a server s made available as per the requirements Union Catalogue and Document Delivery System Software.

- Identify the minimal infrastructure at all universities like Internet connectivity, export tools to take differential backup of the new data entered by the library recently.
- Establish the needed items of infrastructure at all Universities participating in the network.
- Develop local area networks (LAN) in all Universities and in the affiliated college libraries and ensure that library LANs are bridged to the IULC Server.
- Conversion of data already available in machine-readable form at the University libraries into an international metadata format such as MARC-21. The reason, why MARC-21 is recommended as the metadata standard is because, this will enable Universities and the affiliated colleges to download authoritative metadata from MARC-21 data sources such as the Library of Congress, National Agricultural Library, National Library of Medicine and a host of others who offer such data free of charge for libraries to download and use within their own libraries.
- To validate the total metadata so collected from different Universities by matching it with the WORLDCAT of OCLC and download the already validated records.

- To design a a portal. This portal would be a single-window entry point to the library network and will also contain information from all the Universities, their resources, rules, policies, etc. The portal will also point to links for the online public access catalogue (OPAC) of the network. It will also allow end-users such as students and faculty the possibility to connect to e-serials and other resources that may be put up from time to time.
- Development of the online union catalogue of resources of member libraries. This will be accessible via a link on the portal.
- Organization of training programmes on the use of the chosen software for librarians and system administrators at all the universities. There may be need for at least two training programmes over a 4 month period to ensure that library staff at all universities is comfortable in using the software.
- Organizing orientation programmes for students and faculty at all Universities. These are aimed at sensitizing students and faculty to the resources, facilities and strengths of the network and how they might benefit from these. Such programmes are needed both as formal ones as well as one-on-one sessions.
- To develop subject portals of information resources available on the web and to link them to the portal.
- Development of a formal mechanism for oversight of the network and for addressing problems that might affect its smooth functioning. The mechanism will also ensure that there is efficient document delivery and inter-library lending between libraries. The mechanism proposed has a committee comprising the Vice Chancellors and Librarians of all all Universities. The committee will appoint a courier service to be associated with the inter-lending envisaged. All members of the network, it is proposed will be charged a small annual fee of Rs. 5000 - 7500 to cover the cost of the service.
- Co-ordinate with other regional, national and International Library networks for exchange of information and resources.

Test Bed and Other Services

Analytic work to date by the UNILINK initiative on needed functionality for libraries seeking network membership leads us to propose the creation of a set of initial test bed services during this project, summarized as follows:

i) Alerting Service

This test bed service will be pro actively alert learners, scholars, and educators of the existence of new materials in the network. The alerting service will work by first gathering information about an individual's learning and/or research needs and interests, saved as one (or more) user profiles. On a regular basis these profiles will be applied (searched) against sets of newly available content metadata exposed either through the Union Catalogue database or other sources including other library catalogues. The results of these searches will be provided to end-users via a specified portal. A lightweight protocol for this service will be experimented with to provide the alerts to be transmitted to a user's portal account or optionally sent to the individual via email. This service will proactively alert learners, scholars, and educators of the existence of new materials and make the process of finding and getting information from digital libraries easier and more transparent.

ii) Institutional Repository Services

The recent web services protocol, OAI-PMH (Open Access Protocol for Metadata Harvesting) has now been widely employed by universities, research organizations, and even corporate houses to build institutional open access repositories which can be harvested by others using OAI-PMH harvesters. The software that will be chosen should have compliance with OAI-PMH so that University libraries can create digital repositories of their own scholarly contributions. Such contributions are then easily accessible via simple http protocols to other libraries and information centres, which may use a OAI-PMH harvester to connect to and download data from the repositories and then provide needed information services to their users. Similarly, the University libraries can harvest metadata and link to several specialized repositories world wide for the benefit of their users.

iii) Development of a Knowledge Portal Application

The Knowledge Portal (KP) Application is envisaged as a configurable application which can be used by a university library to configure various types of web resources (e.g., free and paid bibliographic databases, open access and other e-journals, search services for full text, learning objects, and courseware. In addition the KP will provide social networking capabilities to enable students and faculty to exchange knowledge and experience. An important element of the KP application is the appointment of a Knowledge Grid Administrator who will facilitate the development of specialized applications and also ensure that participating institutions provide the needed support to develop resources and also ensure that expertise available in these institutions is properly leveraged for mutual benefit.

The figure below graphically represents the idea of a KP application.



Figure 1: Idea of a KP Application

Funding

- Seed money request to the tune of INR 10,000,000 has been made to of Karnataka Knowledge Commission.
- Membership contribution
- Every University INR 100,000
- Every college INR 25,000
- This contribution itself is expected to be approximately Rs.20,000,000
- Proposal for State Government's one time Grants of INR 50,000,000 is also being persuaded.

Conclusion

UNILINK has been designed to support the academic Libraries in the state in addition to the INFLIBNET services. Though most of the objectives and activities are similar, UNILINK will try to address the grass root level issues of the colleges and Universities and enable each of them to help themselves on cooperative model.

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Higher Education in Sri Lanka: a brief overview with special reference to the concurrent development of university libraries

Jayatissa, L.A.¹

Abstract

Modern period of the history of higher education in Sri Lanka starts with the establishment of the University College in 1921. While there was only one university at the time of gaining independence, the country now has 18 universities. A careful analysis reveals that the developments taken place specially during the post independent era are somewhat related to the political reasoning. Further, it could be observed that the university system developed without a long range vision and master plan for the most of the past period. A very brief account of university libraries is presented in this backdrop.

Higher Education in Sri Lanka

The modern era of higher education in Sri Lanka begins with the establishment of the University College in January 1921 with affiliation to the University of London. Its founders expected the legal formalities to go through in a couple of years and the University College to evolve itself into an autonomous University by the end of 1925 (Sumathipala, 1968). The first Government legislative instrument on higher education, the Ceylon University Ordinance, No. 20 of 1942 came into operation on 1st July, 1942 thus combining the University College and the Medical College to form the autonomous University of Ceylon (Ruberu, 1971). In following the model of western civic universities, the policy makers had embodied their ideals in the new ordinance and created a traditionally British. unitary, residential and autonomous University of Ceylon. At the beginning, the new university had four faculties (Oriental Languages, Arts, Science and Medicine) comprised of eighteen departments of study.

The autonomy of the university was secured by making it a 'body corporate with usual powers to sue and to be sued and to act under its common seal in terms of the section 3 of the Ordinance. The university's governance structure consisted of the Chancellor (the Governor who was the Head of the Country), Pro-Chancellor (the Minister of Education) the Vice-Chancellor, the Court, Council and the Senate. Dr. W. Ivor Jennings, the then Principal of the University College was appointed the first Vice-Chancellor. The powers and responsibilities of the new university was shared between the Council and the Senate in a similar fashion to what is in practiced today. The total student population of the University of Ceylon at its inception was 904.

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Although it was envisaged to establish a residential university, this objective could not be achieved completely at the beginning. Construction work at Peradeniya site got delayed due to the Second World War and as a result, the University was shifted to Peradeniya in stages. The initial step was taken with the shifting of the Departments of Law, Agriculture and Veterinary Science to Peradeniya. However, the most decisive step was taken on 6th October, 1952 when 820 students of the Arts and Oriental Studies Faculties moved to Peradeniya (De Silva, 1998).

Dissatisfaction on the functioning of the university emanated due to several reasons, the primary factor being the university's total neglect on adopting Sinhala and Tamil as medium of instruction and its extremely pro-western elitist reputation. It also faced severe criticism on its inability to increase its intake of students. In the meantime, the Buddhist Commission which submitted its report in 1955 had also requested that the Vidyodaya and Vidyalankara Pirivenas which had a high standard of education be elevated to the status of universities (Abeyratne, 1986). The mounting criticism against the University of Ceylon for being more favorable for Western studies not helping the development of the traditional culture and the university's inability to provide a suitable solution to the need to increase intake etc. yielded the Government to establish two more universities in 1959. In acceding to the socio-political climate prevalent in the country during the period, and also without incurring heavy expenditures on establishing two completely new universities, the Government elevated the status of Vidyodaya Pirivena and Vidyalankara Pirivena to fully fledged universities by the Vidyodaya University and Vidyalankara University Act, no. 45 of 1958.

During this period there were three universities functioning from four locations without any coordinated control by the Government. They functioned as independent and autonomous institutions which followed their own policies regarding university admissions, recruitment of staff, courses of study and administration (Ariyaratne, 2009). However, this uncoordinated set up was observed to be a serious bottleneck in streamlining the higher education system in the country. In 1966, when the Minister of Education officiated the Convocation Ceremony of the Vidyodaya University, the students jeered the Minister throughout in his address, thus making the Minister determined to take steps to gain more control over the administration of universities. Ariyaratne has attributed this factor as a possible reason for the speedy adoption of 'the higher Education Act, No. 20 of 1966 (De Silva, 1998). The new Act repealed the previous two Acts, the University of Ceylon Ordinance, No. 20 of 1942 and Vidyodaya University and Vidyalankara University Act, No. 45 of 1958. It also introduced a new mechanism for central control by creating the National Council of Higher Education consisting of nine members.

Describing this new Act, de Silva has observed as follows: "The Higher Education Act, No. 20 1966 was in every sense a major turning point in the history of university education in Sri Lanka. It gave formal shape and greater coherence to what had hitherto been the informal influence that the state had in some areas of university education. Significantly, the new Act repealed ordinance no. 20 of 1942 (the charter of the university of Ceylon) and Act no, 45 of 1958 (which served as the charter of the two 'Pirivena' Universities) and introduced instead a common administrative structure for all universities - a practice which has been followed thereafter when university reforms were introduced in 1972 and 1978 (De Silva, 1998).

The key feature of the new Act was the setting up of the National Council of Higher Education (NCHE) which had a range of powers and functions well beyond those of a University Grant Commission" (Abeyratne, 1986). In describing the positive features of the formation of NCHE, Abeyratne has mentioned the following aspects:

- The Central Admission Agency brought about uniformity and consistency in university admissions procedure;
- Setting up of a common procedure for the recruitment and management of university staff;
- Reduction of disparities in academic standards; and
- Ensuring of uniformity in administration and management of finance (Gamage, 1996).

As the running of administration of the Colombo Campus from Peradeniya was found to be a daunting task, the NCHE recommended to the Minister that an expert advice to be sought in establishing a second University in Colombo. Accordingly, Prof. Frank Thislethwaite, the Vice-Chancellor of the University of East Anglia visited the country from 17 July to 12 August, 1967 to report on the subject. Prof. Thislethwaite recommended that a metropolitan university with modern and international outlook to be established in Colombo. Accordingly, the University of Colombo started functioning from 1st October 1967 (Gamage, 1996). However, the students felt that the degree awarded by the new university to be inferior to those awarded by University of Ceylon (Peradeniya) and demanded parity status. The subsequent student agitation led to the appointment of the Permanent Secretary to the Ministry of Education, Mr. M.J. Perera to be appointed as the Competent Authority by the Minister. It was the first time the Minister exercised the powers vested on him under the new Act. Subsequently, sporadic outbreaks of student unrest erupted at Vidyalankara University in response to the measures taken against the ragging of new entrants. On 7th December, 1967 Minister appointed his Permanent Secretary as the Competent Authority, thereby making a single officer taking charge of two universities (Gamage, 1996). Upon the recommendation of the Committee of Inquiring on the University of Colombo, the name of the university was changed as 'University of Ceylon, Colombo.

The university reforms brought about in 1966 led to frequent student strikes and The university reforms of a remedial measures, the government appointed a royal violence. In order to find remedial measures, which came to power a royal violence. In order to find remeat Government which came to power in 1970 Commission. However, the next Government which came to power in 1970 Commission. However, the neuronal Commission appointed by the previous decided not to proceed with the Royal Commission appointed by the previous decided not to proceed minu and entrusted the drafting of new University Government. The new Covernment 1966 to a committee of academics. They recommended the establishment of a University Grants Commission, General Council comprising of ex-officio members and elected representatives of academics, students and non-academic staff to govern universities. Provisions were made to select Vice-Chancellor in an election with an electoral college consisting among other members, five students and three representatives of the non-academic staff. The University Bill incorporating all these recommendations were proposed at the Parliament on 4th April 1971 to be followed by a movement of insurgency unprecedented in the history of the country on the next day. Mentioning all these, Gamage states that "This [insurrection] deprived the universities of most progressive piece of legislation so far introduced for the development of higher education" (Gamage, 1996). Subsequent search operations carried out by Armed forces discovered arms and ammunition including grenades in university premises and it was also revealed that a fair number of undergraduates and some junior members of the academic staff were involved in this insurrection. At the same time the Vidyodaya and Vidyalankara Universities were converted into detention centres to accommodate thousand of detainees suspected of participating in the insurgency movement. Academic and administration activities of these universities were conducted in several makeshift facilities located outside university premises, with meager resources. Finally, the two universities recommenced operations at their campuses the next year.

The rebellion forced the Government to reconsider the issue of university reforms. As a result, a committee headed by Dr. O.W. Jayaratne, a mid-career academic was appointed to inquire into and to make recommendations. However, one of the serious lapses in establishing the Committee is the urgency intimated by the Government : the Committee was required to report within a period of seven weeks (UGC, 1973). The Jayaratne Committee (as it was popularly known) recommended the formation of a single university comprising of five campuses-Peradeniya Campus, Colombo Campus, Vidyodaya Campus, and Vidyalankara Campus of Sri Lanka. The Ceylon College of Technology at Katubedda, Moratuwa was upgraded to University status and to be made the fifth Campus. The University of Ceylon Act, No. 1 of 1972 brought about these changes reducing the previous universities to Campuses of a single university with its headquarters known as 'Senate House' in Colombo. Other significant changes effected as per the Jayaratne Committee recommendations are the change of the university admission policy to meet the ethnic and geographic imbalance in the science based faculties and the rationalization of courses in universities.

Under the new Act, the Minister was vested with the power to issue directives to the University in pursuance of national policy in such matters as finances, university places, and medium of instruction. In February 1972, he issued a directive on the rationalization of faculties and departments of studies in the University of Ceylon giving the manner in which it had to be done (Gamage, 1996). The scale of the reforms affected through this rationalization programme could be best viewed by the following statement of Gamage's study on evolution of universities: "The Ministerial Directive of June 1973 required the Vice-Chancellor to abolish faculties of Buddhist Studies and Languages at Vidyodaya and Vidyalankara, Oriental Studies at Peradeniya, Humanities and social Sciences at the Colombo Campuses. The Arts faculties at four campuses were required to undergo a major reorganization whereby Colombo, Vidyodaya and Peradeniya were required to have only four departments namely Economics, Geography, History and Languages and Cultural Studies. A super faculty of Arts with 18 departments of study was to be created at the Vidyalankara Campus so that it becomes the centre of excellence in arts including languages and cultural studies. Department of Education at Peradeniya, Vidyodaya and Vidyalankara were to be transferred to Colombo to create a Faculty of Management studies while an Institute of Buddhist Studies to be established at the Vidyalankara Campus. Thus, the programme required the transfer of many departments with their staff to different campuses with very short notice (Gamage, 1996).

The investigation into mass insurrection revealed that unemployment in general and unemployment among graduates in particular has contributed to it in a significant manner. In order to counter this problem, it was envisaged to introduce 'job-oriented degree programmes'. Accordingly, a number of programmes which included the Bachelor of Science (B.Sc.) in Public Finance and Taxation, B.Sc. in Estate Management, Bachelor of Arts (B.A.) in Mass Communication, B.A. in Library Science degree programmes commenced. As regards to the professional education opportunities in Librarianship, the establishment of the Department of Library Science at Vidyalankara Campus in 1974 was a significant milestone. Although the intake of students was comparatively low for a considerable period, the Department survived all odds and subsequently was able to offer a postgraduate Diploma in Library Science and Documentation Studies and a 3-tier Diploma programme in LIS. The Postgraduate Diploma programme was suspended in early 90's and one-year Master Degree and Doctoral Programmes in LIS started in 1997 and 2005 respectively.

One of the serious drawbacks observed in this reorganization programme is the lack of library resources for suddenly started or transferred academic programmes. For example, when the Department of Western Cultural Studies was transferred from the Peradeniya Campus to Vidyalankara Campus, a collection of approximately 200 books were transferred to the Vidyalankara Library from Peradeniya Library. The Vidyalankara Library collection at that time was not in any manner conducive for the conduct of such a programme. Although certain academic programmes were transferred to other campuses, appropriates collections in respect of such disciplines were not moved in full, thus creating additional burden on the libraries. This shows the inept attitude shown by higher

authorities in taking into consideration the requirement of library preparedness in authorities in taking into consideration and the complex administrative structure commencing new academic programmes. The complex administrative structure commencing new academic programs within campuses. Gamage has mentioned and procedures led to various procession of Trade Unions and the Peradeniya that industrial dispute between supported by students and the police was called to Campus developed into a strike capped to between the police and the students ended up in a death of an undergraduate and injuring several others due to police action. A Committee appointed to inquire into this incident placed the major part of the blame on the unsatisfactory bureaucratic structure of governance that prevailed at the time (Gamage, 1996). Summing up the unsatisfactory institution the single university became, Pathmanathan states that "scheme of reorganization launched under transitional provision was opposed by the university community and from the outset it was doomed to be a failure of the highest magnitude" (Pathmanathan, 2000). On a more positive note he observes the following aspects too: "The positive development of the Senate House days was the introduction of the Commerce and Management stream initially at the Vidyodaya and Colombo Campuses, the establishment of the Jaffna Campus and the upgrading of the Ceylon College of Technology at Moratuwa to that of a University Campus" (Pathmanathan, 2000).

The new government which came to power in 1977 had included in their manifesto the abandonment of the single university system. For the first time in the history of the country, a separate Ministry of Higher Education was established in March 1978 with the chairman designate of the UGC being appointed as its Secretary and the President himself retaining the portfolio. The proposed UGC was expected to perform the role of a buffer between the Universities and the Government, interpreting one to the other and to provide expert and 'disinterested advice' to the Government on university affairs. With all these legal provisions, the Universities Act, No. 16 of 1978 was enacted. As per its provisions, the University Grants Commission was established on 27th December 1978.Through the provision of financial resources, control of university admission and remaining at the higher level of educational policy direction, the UGC was able to strike a balance between the conflicting issue of government control and autonomy of universities. With the enactment of the Act, the six existing campuses were converted into autonomous universities as follows:

Colombo Campus : University of Colombo, Sri Lanka Peradeniya Campus : University of Peradeniya, Sri Lanka Vidyodaya Campus : University of Sri Jayewardenepura, Sri Lanka Vidyalankara Campus : University of Kelaniya, Sri Lanka Katubedda Campus : University of Moratuwa, Sri Lanka Jaffna Campus : University of Jaffna, Sri Lanka

In December 1978, the Government Teacher Training College at Polgolla was reconstituted as the Dumber Campus of the Peradeniya University to be effective from 18th January, 1979 by a Ministerial order. By another ministerial order, the

Government Technical College, the Government Teacher Training College and the Government Farm at Matara were reconstituted as the Ruhuna University College. The Faculties of Agriculture, Medicine, Science and Arts were affiliated to the Universities of Peradeniya, Colombo and Kelaniya (Gamage, 1996).

Another significant milestone in the history of higher education in Sri Lanka is the establishment of the Open University of Sri Lanka on 22nd July, 1980 on a Ministerial order. The Ordinance, No. 3 of 1980 set out the structure, powers, duties, functions of the Open University which was modeled parallel to that of the British Open University.

Although there were a number of commissions appointed by the Government to make recommendations on higher educational reforms, none was appointed with the aim of formulating a overall higher educational policy covering all aspects and setting out long range objectives in motion. This long felt need was addressed in establishing the National Education Commission in 1991. It was established with the primary objective of making recommendations to the President on educational policy in all aspects in order to ensure continuity in such policy and enabling the education system to respond to changing needs in society. As such, it was required to study in-depth the policies in respect of general education, higher education and technical and vocational education and to recommend reforms and implementation proposals and strategies. In 1996, the Commission presented its report on higher education entitled 'National policy on university education' (National Education Commission, 1996). In this report, the Commission has identified universities as knowledge generators, centres of innovation and research and service to the community. The commission has made an extremely important observation in respect of higher education policy strategies followed by successive governments. The Commission report on 'National policy on university education (1996) begins with the following remark;

" 1.1 planning for University Education. The absence of a consistent national frame work, and hence an overall policy strategy has been described as a characteristic of University Education in Sri Lanka. As a result, changes are introduced in haste from time to time in an ad hoc manner in response to pressures exerted by various interest groups. A recent development in the use of confrontation from the very outset in resolving issues." (National Education Commission, 1996).

Expressing the need to expand university education in a controlled and planned manner, the report states that universities are to be established to stimulate economic activities. It observes that: Wayamba Province and UVA Province have economic activities which can be stimulated and strengthened by the presence of universities in them. They also have large towns, Kurunegala and Bandarawela respectively, with the infrastructure that can be supportive of universities. Hence, the establishment of universities in these two provinces within the next five year period in recommended. The courses in these universities must have a clear
technological bias (National Education Commission, 1996). These recommendations came into reality with the establishment in 1999 of the Wayamba University and the Uva Wellassa University in 2005.

The report stresses the need for induction of students. The following observation The report stresses the need for library user education programmes and in the report indicates the need programmes to inculcate requisite skills: "The school education system also does not encourage independent thinking or "The school education system energy facts and solutions given out by the teacher or the tuition master to be reproduced at the examination. There are no opportunities for students to acquire knowledge and skills from other sources outside the school. Library facilities are minimal. Poor communication skills and lack of proficiency in English are major handicaps. Even in the University, the undergraduates continue with the same learning culture, depending almost entirely on the lecture notes (National Education Commission, 1996). Having taken into the situation described above, the Commission recommended that a thorough induction programme of at least six months duration is helpful to students. It is sad to note here that even after 14 years since the Report, the situation remains same while there are hardly any evidence suggesting the implementation of its recommendations.

In respect of university library resources "the Commission recommended that supply of necessary books, journals and periodicals to the academic staff has to be done regularly". As regards to the Library Professionals it was recommended that the "selection of senior administrative and library staff should be based on more rigorous criteria and they should be given a training in management and for the development of relevant professional Competencies" (National Education Commission, 1996). It observes the provision of adequate library and laboratory facilities as an incentive to retain the academic community attached to universities.

University Libraries in Sri Lanka

The forerunner of all university libraries in the country, the University of Ceylon Library was formed out of a collection of 2,500 books on history and literature donated by Sir Ponnambalam Ramanathan in memory of his son A. Pathmanabha and the collection inherited from its ancestral institution, the University College Library (SER/ University of Colombo, 2009). Its budget in the first years was Rs. 750 (Corea, 1969). When the University of Ceylon Library shifted to Peradeniya in 1952, books and reading materials relating to the faculties in Colombo were retained in Colombo (Corea, 1969). With the establishment of second Arts Faculty "Rental Library" were issued on a payment of 25 cents per a book for a period of (Library/University of Colombo, 2009). However, there is no evidence indicating the termination of this service. It is reported that the faculties such as Science, Veterinary Science and Agriculture had their own decentralized libraries since the establishment of the university. This suggests that the notion of decentralized faculty libraries prevailed from the very beginning. At present, the University of Peradeniya Library System is the largest in the country with a main library and 5 faculty libraries

During the post independence period the total number of universities in the country grew to 15 national universities coming under the purview of the UGC. The chronological order of the establishment of university libraries could be traced in the following order: Peradeniya and Colombo has their history back to 1942, Sri Jayewardenepura and Kelaniya (1959), Moratuwa (1972), Jaffna (1974), Ruhuna (1978), OUSL (1980), Eastern (1981), South Eastern (1995), Rajarata and Sabaragamuwa (1995), Wayamba (1999), Visual and Performing Arts and Uva Wellassa (2005).

As per the provisions made in the legislative enactments concerning higher educational institutions, the university library professionals are considered as academic staff and the university librarian is a designated officer of a university. As such, the university library professional staff is entitled for privileges enjoyed by the academic staff with the exceptions due to the nature of job handled by librarians. During the recent past there are systematic efforts made by some university libraries to impart information literacy skills development programmes among undergraduates and advanced user education programmes on the use of full text databases among some faculty members thus assuming the role of a true academic. However, the pace of developments taking place in this direction is far from satisfactory, at times due to reasons beyond the control of librarians.

It is a clear fact that individual libraries may have taken almost all possible steps to improve their own libraries. However, the developments taken place in information and communication technologies has eliminated the physical, social and political boundaries and provided a good opportunity for networking and more cooperation between individual institutions. Therefore, the next level of development in library services should be directed towards promoting inter-library cooperation and resource sharing. Although there is some progress in this direction, there are more opportunities to explore and develop. The Internet has paved way for librarians to offer library information services disregarding physical boundaries while at the same time it offers the door out of libraries to library users. It could be concluded by observing that the past formative period of over six decades has been spent on developing university libraries in Sri Lanka while the future is depending on librarians' visionary and dedicated approach to meet challenges.

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Scholarship and Academic Librarianship

Ranasinghe, Piyadasa¹

Scholarship and librarianship have been intermingled since the inception of libraries. The scattered evidences of ancient libraries show the keepers or custodians of these libraries were scholars, for example, Zenedotus, the famous Greek scholar was the first librarian of the Library of Alexandria while the poet Callimacus was the cataloguer of the same library. Similarly, scholar Cassiodorus was also a librarian. In China, the great philosopher Laotsu served as the chief archivist of the Imperial Archives of China.

The scholar-librarian tradition can be seen in the medieval European monastic libraries also. Scholar-priests were the librarians of most of these libraries. It is to be noted here that these monasteries later formed the nuclei of major universities in Europe. Even in Sri Lanka, though direct evidence is not available, certain legends in chronicles suggest that early monastic libraries in the country were run by learned Buddhist monks.

Modern dictionary indicates that the terms, *scholar* and *librarian* do not show that there is a relationship between them. {*Scholar* - specialist in a particular branch of study, especially the humanities; a distinguished academic. *Librarian* - a person, typically with a degree in library science, who administers or assists in a library (American Oxford Dictionary)}.

However, an English language thesauri show the two terms are synonymous, for example, terms such as bookman, man of letters, litterateur, literary agent, reader, book worm, librarian, and *scholar* have been used for both scholars as well as librarians.

Since the transformation of medieval monasteries into universities, may be up to the 20th century most of the university librarians were scholars. Their recognition as distinguished scholars might have led to the recognition of university library profession as an academic profession in countries such as Great Britain and those who followed the British tradition.

Even in America until 20th century, libraries were run by "people who consider themselves scholars" and they "were expected to have extraordinary broad knowledge" (Biggs, 1981). Appointing scholar-librarians from the faculty can be seen in the 19th century American academic libraries also. Best example in this regard is the appointment of Charles Coffin Jewett as the librarian of the Brown University.

¹Piyadasa Ranasinghe, Professor of Library & Information Science, University of Kelaniya, Sri Lanka piyarana1010@yahoo.com He was the professor and chair of the department of modern languages and literature in the university. Scholarship was considered as the first requisite of librarianship during the period. In 1876 Smith wrote "The first requisite for success in our vocation is...a natural love for books. A librarian should be ...consumed by an insatiable thirst for knowledge, and interest in a wide range of subjects. A knowledge of the outsides of books is not sufficient. ...a librarian's evenings should, by choice, be spent in reading". In short "the librarian was expected to be a lover of books, a gentleman and a scholar" (White, 1961, as cited by Rice-Lively and Racine, 1997). At a time where the mapping of knowledge based on three great Baconian divisions and the emphasis was on humanities rather than science and technology this situation seems to be quite natural (Satija, 2008, p.39-40)

The situation began to change rapidly due to various reasons such as proliferation of printing and publishing, especially the growth of journal literature and the emergence of newer types of media to record human thought. "Information explosion" was beyond the control of traditional librarianship. As such, nonlibrarians also found their way into the field of organization of knowledge. The best example is the emergence of companies such as H.W. Wilson for the bibliographic control of journal literature through the production of indexes and abstracts.

With the growth of new academic disciplines and related research, as well as the expansion of undergraduate and graduate programmes in universities, "the role of the academic librarians shifted from advisers or helpers to shapers of the contents and services of the library" (Rice-Lively and Racine, 1997). Dissemination of knowledge rather than the collection of knowledge came into forefront. Long before the introduction of electronic media, observing the rapid growth and effect of technology on libraries, certain foresighted librarians speculated the provision of library services through print-based sources could be challenged in future. In 1931, Ranganathan questioned: "who knows that a day may not come when the dissemination of knowledge, which is the vital function of libraries, will be realized even by means other than those of printed book?"

By the mid 1960s emergence of computers and networked technologies began to influence the academic library routines and services and thereby the role of librarians. It is said that "librarian was moving the more traditional duties (collection maintenance and custodial tasks) to newer functions of translating, accessing and marketing resources beyond the walls of the institutional library. The functions of the librarian seemed to be evolving from the keeper of books to that of network navigator" (Rice-Lively and Racine, 1997).

Establishment of the first library school in 1887 at Columbia University boosted the development of academic librarianship as a profession and validated the profession through the production of considerable amount of professional literature in the form of research articles, theses, text-books etc. University librarians had been recognized as academics in many countries in the world including Sri Lanka.

Legal recognition and the acceptance of that recognition by others are two different things. For the purpose of service conditions such as salaries, tenure, study leave etc., university librarians may be on a par with their counterparts, the faculty members. But, it is a valid question to be raised whether the university librarians command the respect of the faculty as full-fledged academics or scholars. As noted by Carpenter (1997) "enmity exists between librarians and teaching faculty, and the enmity is harmful to libraries and to librarians. It hurts librarians externally that it fosters the isolation of librarians in the academic community and inhibits librarians and teaching faculty from working together as allies in garnering all possible support for libraries. Internally, the enmity is harmful in that it fosters divisiveness among librarians".

The enmity has a long history. Marchant (1969) states that "the institution of modern librarianship and modern library practice constituted the first important conflict between the librarians and faculty". Biggs (1981) in her elaborated article on the same theme illustrates the incident as follows: "Although scattered course were offered earlier, professional education for librarianship in America really began in 1887 when Melvil Dewey, Chief Librarian of Columbia College (later Columbia University), founded the School of Library Economy. Hounded from the outset by trustees, administrators and faculty for his policy of admitting women (though the opposition was perhaps also a manifestation of other professional and personal antipathies), Dewey was forced the following year to move his school to Albany, where it became the New York State Library School. Not until 1926 was he able to reestablish it at Columbia".

It is not the intension of this paper to examine the reasons for this enmity. But, I would like to reflect on "scholarship" factor which seems to be one of the root causes of the conflict.

In 1990, Ernest Boyer in his work "Scholarship reconsidered: priorities of the professoriate" based on a survey of faculty, 1989, proposed a model of scholarship (of course there are other models too) which consisted of four dimensions: Discovery, Integration, Application and Teaching. According to him "Discovery" involves with traditional research and the creation of new knowledge. While "Integration" deals with synthesizing new knowledge from existing facts, new interpretations on existing knowledge and interdisciplinary research "Application" covers the acquisition of knowledge through professional practice. "Teaching", the last dimension of the model involves in the expansion of self understanding of a discipline by teaching others and transmission of knowledge inspiring new scholars.

In the context of librarianship how these dimensions can be applied? Indeed, librarians have made certain "discoveries" and conducted numerous traditional

researches in their field of study. Classification systems and theories, indexing researches in their field of study. Classified on principles are best examples, indexing systems and theories, cataloguing codes and principles are best examples in this systems and theories, cataloguing codes and principles are cost examples in this regard. However, except for the library world in general. Librarians' cost is are regard. However, except for the notary in general. Librarians' contribution to not known to the academic world in general. Librarians' contribution to not known to the academic world in general internations contribution to "integration" dimension seems to be very little when compared to other fields of "integration" dimension seems to be very scial sciences. Their highest contribution study in the streams of humanities and social sciences. Their highest contribution study in the streams of "application" in which they always acquire knowledge is in the dimension of approximation of knowledge they are through professional practice. It is through this acquisition of knowledge they are through professional practice. It is the process of dissemination of knowledge. It is to be in a position to engage in the process of dissemination of knowledge. It is to be in a position to engage in the procession has the potential of "discovery" also. A noted here that "application" dimension has the potential of "discovery" also. A good number of practical discoveries in library science are undoubtedly the results of "acquisition of knowledge through professional practice". Perhaps, even librarians may think that they are not involved in the "teaching" dimension of the model. This is a misconception. Academic librarians may not teach in lecture halls as their counterparts in the faculty do. (Of course, there are many academic librarians who do part-time teaching in the faculty). But, as a matter of fact academic librarians are teachers for students as well as faculty members. They do teach through their various programmes. User education or library education programmes, information literacy programmes, and reader advisory services are few of them. Through such teaching programmes, as the model proposes librarians self understanding of the discipline broadens. Also, the knowledge they transmit in this way inspires new scholars.

In July 1996 at the Annual Conference of the American Library Association, the Association of College and Research Libraries (ACRL) appointed a task force to prepare a formal statement defining and describing the kind of scholarship performed by academic librarians. The statement was to be based on the taxonomy developed by Boyer (1990) and then by Eugene Rice (1996). The task force identified the roles of faculty members under three categories: teaching, scholarship, and service to the institution and profession. The report states that it is not problematic to place the activities of academic librarians in the category of service to the institution and profession. But, in the categories of scholarship and teaching it is not so because "the attempts to equate responsibilities such as reference, cataloguing, and collection development with classroom instructions have been met with skepticism". However, the report accepts that "a major proportion of the work done by librarians qualifies as scholarship" (Academic librarianship and the redefining scholarship project, 1996). The scholarship model used in the report is the same as of Boyers' except for the change of the word "discovery" to "inquiry". The report recognizes a number of activities academic librarians usually perform within the category of "inquiry". Conducting citation studies, studies on information seeking behaviour of users, constructing means for organizing data and information, preparation of analytical bibliographies are some of them. Under the category of "integration" it lists a number of activities academic librarians perform and concludes "academic librarianship has drawn upon a wide range of other disciplines for knowledge that informs and transforms library work". In the dimension of "application" the report says that "academic librarianship applies the theory and knowledge gained through inquiry, integration and pedagogical experimentation to meeting the research and learning needs of the academic community" In the sphere of teaching "academic librarianship involves instructing people in becoming "information literate" independent scholars who can find, assess and use information effectively" (ibid)

The foregoing discussion shows that in spite of various conflicts and frictions, there is a common consensus in the academic world that academic librarians, by nature of the activities they perform, belong to the category of scholars. However, this consensus needs to be further strengthened.

In this era of information technology where act-lemic libraries (all other types of libraries too) lost their once enjoyed monopoly, and every man has become his own librarian (computer centers in campuses, internet cafes alongside streets, and even home computers have now become substitutes for libraries), in order to secure their identification as academics academic librarians have to rely more on more on "scholarship".

Indeed, the present situation has given a golden opportunity to academic librarians to emerge themselves as a powerful group of scholars. As noted by Mann (2007) "Most researchers-at any level, whether undergraduate or professional-who are moving into any new subject area experience the problem of the fabled Six Blind Men of India who were asked to describe an elephant... Each of them discovered something immediately, but none perceived either the existence or the extent of the other important parts-or how they fit together. Finding something quickly in each case, proved to be seriously misleading to their overall comprehension of the subject. In a very similar way, Google searching leaves remote scholars, outside the research library, in just situation of the Blind Men of India: it hides the existence and extent of relevant sources on most topics (by overlooking many relevant sources to begin with, and also by burying the good sources that it does find within massive and incomprehensible retrievals). It also does nothing to show the interconnections of the important parts Mann, 2007). This is the best area where academic librarians can use their "scholarship" most effectively, to show a way out to other academics who are engulfed in the present day information labyrinth.

As concluding remarks, I wish to highlight certain points, based on my own experience.

1. The common tendency of academic librarians to hide their light under a bushel should be eliminated. They must always strive hard to find new ways to convince and display their scholarship to others.

2. They should not restrict their researches only to the librarianship. Works on other fields in relation to the profession is important. Let the disciplines you have studied as undergraduates form the background of such researches.

3. Academic librarians should publish as much as possible in journals of other disciplines.

4. Turn the library into a vibrating academic centre embracing all faculty members.

5. Keep close contacts with the faculty.

6. Academic librarians should be familiar with core literature of the basic disciplines, especially in humanities and social sciences.

7. They need to understand that the difference between a computer expert and an academic librarian lies in the traditional "scholarship" factor. Never let the technology to undermine your traditional scholarship.

"The librarian of the electronic age, like the librarian of the ancient and medieval worlds, will have to be a scholar among scholars. He or she will be the information specialist in every research group, the person who helps the group keep up with and understand the state of knowledge and its history" (Chodorow, 1996)

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Academic Libraries: challenges ahead

Jayasuriya, Sumana¹

Introduction

Today, we are living in an age of change and challenge. The changes occurring now are instantaneous. Importance of knowledge as a key factor in determining prosperity and quality of life, the global nature of the society we live in, the ease with which information technology enables rapid exchange of information, and the degree to which informal collaboration (networking) among individuals and institutions replacing more formal social structures seem to be the order of the day.

Rapid evolvement of technology taking place in a number of areas in particular global networking & telecommunications, digitization and electronic publishing and delivery has dramatically changed the way the universities collect, manipulate and transmit knowledge. These developments are acting as catalysts focusing the attention of information professionals, academic community and also the general public.

The implications of these technological changes for knowledge intensive organizations such as universities are profound indeed. The primary mission of the university is characterized as teaching, learning and research. Though this mission of the university has not changed the way of delivery has undergone a gradual transformation.

The structures of the universities have undergone changes in many areas, and the universities have ventured into many areas which were earlier considered as outside their normal activities. Now the courses offered are not limited to undergraduate and post-graduate courses, but extended to fulltime, part-time, offcite campuses, distant learning programmes, professional courses, outreach programmes etc.

The students who come to the universities are products of the digital revolution, and they may not like the traditional classroom instruction, but delivery through a media-rich environment. The role of the university academics has changed from face-to-face instruction in a class room to more participative and student centered mode of instruction. This change is well illustrated by James J. Duderstadt, President Emeritus and professor of Science and Engineering at the University of Michigan:

¹Sumana Jayasuriya, Librarian, University of Colombo sumanaj@lib.cmb.ac.lk Faculty members of the 21st century university will find it necessary to set aside their roles as teachers and instead become designers of learning experiences, processes, and environments. Further, tomorrow's faculty may have to discard the present style of solitary learning experiences in which students tend to learn primarily on their own through reading, writing, and problem solving. Instead they may be asked to develop collective learning experiences in which students work together and learn together with the faculty member becoming more of a consultant or a coach than a teacher.

In this back drop what will be the future of the academic library and an academic librarian? Through out the centuries the intellectual focal point of the university has been its library, its collections preserving the knowledge of civilization. Today the knowledge exists in many forms: as text, graphics, sound, virtual reality simulations, distributed digital representations over worldwide networks, accessible by anyone at anytime. The role of the library is becoming less that of collecting to more of a knowledge navigator and facilitator of retrieval and dissemination.

State of the art technology has become a driving force changing the face of the traditional university library, and this is a continuing concern for the profession, and several issues have come up which need to be addressed if the academic libraries are to thrive in the future. I plan to discuss these issues under five areas: technological developments, establishing credibility with the faculty, teaching and training; management issues, and professional development.

Technological Developments

Helping to connect people with the required information has been the basic tenant of academic librarianship and it will remain so irrespective of the changes of varying formats of resources, and methods of transmission & delivery. The technology will continue to represent one of many means to achieve this connectivity, and should be seen as a mean rather than the end.

University libraries are utilizing multiple media extensively in their libraries, now having online databases in addition to print collections, extensive access to eresources, and are engaged in providing web-based information, meta-data, resource links, cross data-base searching and more. The issue for the librarian is not as much access to material or the concern that there is not enough material. The problem for librarians is the distillation and categorization of materials in an era when information is proliferating at almost exponential rates each day. Today, a user coming to the library needs to know not only to how to find information, but more important, how to sort through the volumes of information available for any request. Teaching users how to effectively apply the increasingly sophisticated search methods available online will be an important function in an academic library. The challenge for librarians will be to devise the most effective and efficient ways to assist the user in this process.

Technology has posed a challenge to the best practices and the culture the libraries have already developed. Librarians can no longer play the role of the custodian as it is no longer valid in a techno-rich library environment. They have to grab the opportunity to transform themselves into a role of a creator by turning data into content which the users demand. The librarians must not be threatened by the software developers who build information capturing, navigating, organizing tools, but make use of these tools to re-image or re-package data as content.

It is the developments in the information technology which have affected the role of the librarian more than anything else and IT related skills will continue to become a valuable asset in the coming years. All library staff is aware of the importance of information technology to the modern academic library. It has generated many issues in the organization: collection development policies to balance between what resources the library should acquire and to what resources to provide access, mode of document delivery, networking, automation of library operations to name a few.

Librarian has to keep abreast of subject knowledge and it's accompanying IT developments in order to advise and guide the students and the staff in a diverse range of electronic sources, and formats in a particular subject area. He will also need to be familiar with advanced search techniques, and necessary skills to train internal staff and users. In addition, the librarian must also gain skills in bargaining, negotiating, budgeting, to obtain access to the electronic resources. The librarians' knowledge, experience and acquisition of these skills are all important in selecting and acquiring of appropriate resources.

No need to stress here that the Librarian also must acquire skills ranging from word processing, spread sheets, to maintaining WWW files, integrated systems, and trouble shooting. The librarians ought to change and acquire the necessary skills to meet the changing environment.

Credibility with Academic Staff

The university librarians are skilled professionals who play an integral role in the pursuit, dissemination and structuring knowledge in the university. It is essential for the librarians to gain credibility with academic staff in an educational role and this result in effective integration. The status of librarian, academic qualifications, subject-based knowledge, academic activities, personal qualities and professionalism will act as catalysts to earn the credibility with the academic staff.

Academic status of the university librarians has been a debatable issue over a long period of time, and there is a vast amount of writings on the subject. These writings offer many different perceptions on their role within the academic community. Are they administrators, teachers, and some kind of hybrid, scholars, and professionals, curators of knowledge or providers of support services?

One major view point is that the university librarians should be considered as 'Teachers' as they provide students with information in a systematic and orderly fashion. They also feel that the librarians involved in the university community research and professional activities are in a better position to control the library work rather than those librarians who remain insulated in the library. The academic status benefits not only the individual but the library and also the whole university community. Those who argue against say that librarians are not primarily 'teachers' and the work they do is fundamentally different from the faculty, and the librarians have a service mission to fulfill.

The debate on the status of librarians revolves around two issues: first whether the librarians' responsibilities suitably scholarly, academic and professional to qualify as teachers, and the second should the librarians have similar conditions of service as the academics. The academic status of the Sri Lankan university librarians have been assured by the Universities Act and the challenge before us is to maintain the status quo. If the librarians are able to improve themselves and the quality of the library service it automatically raises the standing of the individual librarian.

The librarian with graduate and post-graduate qualification in a subject pertaining to a department of a faculty will gain the credibility by virtue of the subject familiarity. This qualification coupled with a masters or a doctoral degree in library and information studies will earn the status and respect of the academics that will have similar level qualifications. The importance in gaining teaching qualification is also emphasized. Participation in scholarly activities such as publishing journal articles, books etc, editorships, and presenting papers at conferences, helps to gain credibility.

Personal qualities of the librarian contribute to gain confidence of the academic community. The librarian who is positive, proactive, highly motivated and assertive is likely to foster more meaningful and productive relationship with the faculty. Librarians who demonstrate a professional approach to their work will gain the respect of academics and students alike. This relationship will be enhanced by developing effective interpersonal skills and communication skills.

Teaching and Training

The teaching role of the librarian has come to the fore-front recently due to proliferation of resources in digital format, and with the automation of library operations. The focus of the librarian today is to ensure that students become selfreliant information users. In order to achieve this, the librarian needs to become more flexible and adaptive to a teaching environment, and develop several core competencies as educators.

The librarian needs to:

- be comfortable in conducting user education programme for a small group or a large group of more than 200 students;
- or a large group of more than a be equally comfortable in conducting these sessions in the library or a
- class room in the faculty; class room in the factory, understand how the students organize their studies and how they go about
- their learning; their learning,
 be familiar with a variety of teaching and learning methods including be tamiliar with a tanto property teaching, and use of electronic classrooms;
- understand the problems of non-traditional students such as distance, part time, and disabled students;
- design and develop user education programmes incorporating skill acquisition;
- maintain closer liaison with the academic staff and help them to develop course material; and
- turn constraints into opportunities.

To transfer some of the skills successfully to students is formidable challenge to librarians.

Management Issues

High quality management is required to ensure that the changes are turned to the advantage of the library service. The librarians need to follow good management practices to function effectively in an increasingly competitive environment. Changes in the staff structures, decision making processes, emphasis on individual performance, accountability of service, financial constraints, importance of effective negotiation with the authorities, emphasis on team work are some of the managerial issues the librarian has to deal with. These issues can be discussed under three areas of management which is the management of change, strategic awareness and financial management.

Changes in the information environment which has occurred as a result of development of electronic information resources, and the evolution of 'digital age' has changed the technology used by libraries in their operations, expectations of users and the ways in which they seek information, information publishing and dissemination. The libraries will have to adapt to changing circumstances by resorting to new strategies and services, which can be resisted by internal staff as well as the users. The librarians have a duty to explain and answer questions coming from the students, internal staff and the faculty about these new services and strategies. If we build an effective and successful communication between the academic staff and the library successful academic integration can be achieved. If the librarian whenever possible get the library staff involved in the decision making process, there is a greater chance of obtaining ownership and commitment for those decisions. With participative decision making, commitment and involvement could be obtained from the library staff.

Technology is moving librarians into new roles which are not always welcomed by the libraries, but nearly all of benefit to library users. In most cases these new roles are an addition to, not a replacement for traditional duties. New services will continue to develop, but many traditional library services will continue in some form for the foreseeable future. Libraries are challenged to meet the increasing demand for service with limited staff and budget, but change can be managed by making use of several elements common to most libraries. Each library can develop an individualized change management program that takes into consideration the basic elements of experienced staff, new hires and creative supervisory practices.

The librarians need to be aware of what is strategically important to the library service. The mission and long-term plans of the university, the mission of the library, how these two missions interrelate, how the external environment affects the institution and the library, are some of the matters which enables the librarian to understand the context in which and the constraints under which the library service operates. The library cannot function detached from the external environment. The awareness enables the librarian to get an understanding of the wider picture.

Financial Management Issues

Financial constraints have been a perennial problem for the libraries over the years. The provision of library service becomes more complex when libraries have to give more having only a little. Increasingly the librarians have to make decisions about finances of the library. Library budgets cover books, journals, furniture, IT equipment, staff training, database service, document delivery services to name some of them. While in-depth knowledge of accountancy is not considered necessary the librarian has to be familiar with resource allocation models to balance between different service elements, for example printed versus electronic; or access vs. ownership. The librarian has to be knowledgeable in resource allocations models, conducting negotiations, and variety of charging modes, and the publishing industry.

Professional Development

The partnership between the library and the individual librarian is important for the professional development. This partnership helps to retain the motivation of the library staff and maintain a positive attitude.

Staff development and training should be a responsibility of a senior member of the staff who would formulate and co-ordinate policies across the service through consultation and discussion. Coordination can take place between and within different levels of staff, organizing group events, cooperative ventures between institutions, different courses visits, conferences. Staff appraisal and review should be carried out to identify the needs for staff training and development. Then it will become easier to identify the areas where the quality of service fails below the accepted standards.

The individual librarian is responsible for his or her own personal professional development. Continuous professional development is imperative in a rapidly changing information landscape. This may range from developing interpersonal skills training to the exposure to dynamic changes within the information technology. Each individual must have a personal programme of training needs built up as part of their working life, and should not expect the organization to do it for them. Updating the skills they already acquired can be done by participating in staff development and training events, but they need to practice them to apply in the work setting. Networking among librarians are growing rapidly and it may come in variety of forms, informal chat groups, conferencing, electronic news letters, user groups etc. The librarian need not be professionally isolated; the internet has provided a vehicle for national and international networking which librarians can be updated.

Librarian today is living in exciting times. It is not only the rapid changes taking place that provide the excitement but the realization that they can make a significant contribution to the progress of the academic community. That is if you believe what is before us are not challenges but opportunities.

In conclusion, I must congratulate the University Librarians' Association for organizing this conference on an appropriate theme 'University librarianship: an academic challenge and opportunity' this year. I hope the resource persons and the participants will have a fruitful discussion and dialogue during the two days which will open up many opportunities to work together to uplift the academic library profession. Thank you.

Future of Library and Information Science Profession with Reference to University Libraries

Pange, B. M.¹ and Meshram, Rajani²

Abstract

Librarianship is an expanding profession which offers and immense opportunities to enrich your knowledge while helping readers. Profession means an occupation, especially one requiring extensive education in a branch of science or the liberal arts. The term Professions denotes occupations which demand a highly specialized knowledge and skill acquired at least in part by courses of a more or less theoretical nature and not by practice alone, tested by some form of examination either at university or some other authorized institutions and conveying to the persons who possesses them considerable authority in relations to clients.

Librarianship is definitely an occupation which demands specialized knowledge and skills, the study is based on a systematic theory which delineates and supports the skills that characterized the profession. It has its professional organizations which promote excellence in the work of the members, influence public sentiments and support and try to raise it to a position of dignity and social standing.

The present paper highlights the characteristics of a profession and applied it to the library profession. Many changes have taken place in this profession during last few decades. Automation, application of information technology, appearance of electronic journals and databases has drastically changed the ways and means of providing information services to the users. At the same time, the profession facing many other problems such as information technology professionals are taking over the jobs of librarians, Librarians are not given the status of Teachers in many parts etc. The Librarians themselves are not happy abut this profession and they are not getting the supports from society.

These are some of the problems which are discussed in detail in this paper. Efforts have been taken to eliminate these problems and suggest some solution to make this profession as a noble profession.

Keywords: Librarianship, Professionalism, University libraries, Ethics, UGC. Academic libraries

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Introduction

A well-equipped and well managed library is the foundation of modem educational structure. A teacher's task is to impart formal education whereas librarian is concerned with the stupendous work of introducing self-education. A librarian's main job is to guide the readers 'how and where to find out the librarian's main job is to guide the readers 'how and where to find out the material'. During the last few decades, librarianship has developed enormously not only in its traditional areas but also into new areas involving completely new techniques and the uses of equipment which has been developed to enable more work to get achieved with minimum of extra manpower. But at the same time librarians are facing some fundamental problems with respect to their profession, their duties and responsibility towards society and especially users.

What is Profession?

Profession means an occupation, especially one requiring extensive education in a branch of science or the liberal arts. A profession arises when any trade or occupation transformers itself through the development of formal qualification based upon the development of formal qualification based upon education and examinations. The emergence of regulatory bodies which powers to admit the discipline members and some degree of monopoly rights. The term Profession has been defined by various authors. To understand the meaning and importance of profession it is necessary to study few definitions.

Definition of Profession

The Oxford English Dictionary (2008) defines a profession as "a vocation in which a professed knowledge of some department of learning or science is used in its application to the affairs of other or in the practice of an art founded upon it."

According to Dictionary of Social Science (2007), the term Profession denotes occupations which demand a highly specialized knowledge and skill acquired at least in part by courses of a more r less theoretical nature and not by practice alone, tested by some form of examination either at University or some other authorized institution, and conveying to the persons who possess them considerable authority in relation to 'clients...'

According to Herbert Blumer (1959), "Professionalism seeks to the clothe a given area with standards of excellence, to establish rules of conduct, to develop a sense of responsibility, to set criteria for recruitment and training, to ensure a measure of protection for members, to establish collective control over the area and to elevate it to a position of dignity and social standing in the society."

According to Wikipedia, "A profession is a vocation founded upon specialized 'Education Training', the purpose of which is to supply disinterested counsel & service to others, for direct and definite compensation, wholly, apart from expectation of other business gain."

From the above definitions, one can derive following observations about profession.

- a) Profession tends to be autonomous which means they have high degree of control of their own affairs.
- b) Professionals have freedom to exercise their professional judgment.
- c) The professional autonomy is often described as a claim of professionals that has to serve primarily their own interests.
- d) Professionals enjoy high social status, regard and esteem conferred upon them by society.
- e) Professionals have power. This power is used to control its own members and also its area of expertise and interests.

If we compare these observations to Librarianship we definitely feel that librarianship des not enjoy all the things mentioned above.

Characteristics of Profession

Many scholars and authors have given various characteristics of profession. Following are some of the characteristics of Librarianship. According to Grace T Stevenson (1953)

1. Profession is self organizing and it has definite objectives and it has a code of ethics.

2. A Profession must have a technique capable of communication.

3. A profession involves activities that are essentially intellectual in character.

Librarianship requires continuing self-education.

4. Research as a means of developing and improving techniques and organization of a profession.

5. Profession develops its own literature.

As librarians we are in a unique position to do a great public service. A democratic society is predicated upon the ability of people to govern them. To do this they must be informed. The libraries are virtually the only nonpartisan, truly democratic, free, public institutions which can accept this role of informing our citizens without question. The "library stands for much that is cherished in our tradition of equal educational opportunity, and freedom of thought and communication." What we accomplish is limited only by our vision and degree of willingness to devote ourselves to the task.

Librarianship as a Profession

Librarianship is, definitely an occupation which demands specialized knowledge and skills, its study is based on a systematic theory which delineates and supports the skills that characterized the profession. It has its professional organizations which promotes excellence in the work of the members, influence public sentiment and support, and try to raise it to a position of dignity and social standing. It has at its centre the career concept, and from the very beginning it is service oriented.

Philosophy of Librarianship

Philosophy means an inquiry into truth. Philosophy of a subject denotes the principles underlying it. It provides its aim, functions and purposes. Philosophy is concerned with the abstract principles of a subject. Philosophy of librarianship means its aim, functions and purposes. It indicates those fundamental principles upon which all the practices, techniques and activities of librarianship are based. These principles serve as guidelines for successful librarianship.

Ethics of Librarianship

Mittal (2007) had described number of duties and responsibilities for librarianship. One can understand the greatness of Librarianship by learning these principles.

1. A Library is a repository of wisdom of great thinkers of the past and the present. Its motto should be to serve as a 'Fountain of Truth'. Libraries should be more or less autonomous bodies least affected by political upheavals. Its book selection policy should be free from bias.

2. Librarians aim should not be only to satisfy the demands of the existing thinkers and the seekers of truth but he should work hard to create and sustain people's interest.

3. It should be an ideal of a librarian to afford the readers an access to the best thought of the world so that they may develop their personality to the full by putting into practice the best ideas given by great thinkers.

4. The Librarians should acquire and make available to the readers all the classics and standard work of eminent authors without bothering that they belong to one group or the other.

5. The Libraries should serve as 'Intellectual Service Stations'. It means that the Librarians' mental development should be of such a level that he understands the intellectual needs of the readers and makes proper arrangements for meeting them adequately.

6. Librarians attitude towards the readers should be based on commercial a line that is he should like a businessman; strive hard to ensure entire satisfaction of his clients.

7. The profit to the Librarian can be measured in terms of the use made of the reading materials stocked by him.

8. The Librarian is also a constituent part of the community in which he lives. He owes a debt to such a community. He cannot have any existence without the community. So he must serve his community in a proper manner.

9. A Librarian has got the responsibility of providing facilities to the citizens to make the best use of their leisure time which is otherwise wasted in superfluous pursuits. He can channel the energies of the people in right directions by converting them into potential readers.

10. A Librarian is bound to sustain the reading habit of the users.

11. A Library's purpose should be to provide self education instead of formal education which is the function of the schools, colleges and universities.

12. A Librarian, who does not love books, cannot become a successful librarian just as an engineer who does not take care to learn the use of the tools of his trade.

13. The Librarian must know his clients thoroughly that is he must know their likes and dislikes at least in the literary fields so that he provides them with the right type of materials.

14. The Librarian should consider all the readers alike without any distinction of caste, creed, sex or religion.

Librarian's Responsibility to his Profession

Librarian must know the material which he handles; or to say it more simply, he must know the content of books. But he must also know users, because he cannot bring these two elements into a harmonious relationship without a thorough understanding of both.

Although the basic principles of librarianship are the same everywhere, its scope and nature varies according to the objective of the institutions and the requirements of the readers. The Librarian is therefore, expected to chanalize his energies, abilities, efforts primarily towards acquisition, processing and making the reading materials to his readers as promptly as possible.

1. Service to society: A service performed for the benefit of humanity and with a high sense of purpose and dedication.

2. Intellectual content: A profession should have a body of intellectual knowledge, a core of Fundamental theory as well as corpus of practice. Even though, this is one of the best professions, many librarians are not happy as a Librarian.

Drawbacks of Librarianship

Deirdre Dupre (2001) had conducted a research in this respect and witnessed few drawbacks of librarianship. She asserts that librarians feel very insecure about their profession - so insecure that it has become a pervasive anxiety throughout the field of librarianship.

Librarians have developed the feeling of not being valuable or valued by others. She feels that ALA's quoting the profession of librarianship did not currently have enough of an identity either inside or outside of the profession is very painful. Harris et al. (1998) had expressed his views on future of libraries and stressed that the librarian of the electronic age could become a valued profession. On the other hand Hutchins and Travis (2000) focused that librarians clearly have no social status or power. But one cannot forget the contribution librarians have given to shape and develop many disciplines and organizations.

Different Ways of Enhancing Librarianship

Patricia Paylor (1957) had suggested various ways through which librarians' image and status can be enhanced, these are as:

- 1. To develop a strong senses of your own self worth and the worth of the profession.
- 2. Honor and respect the women and men you work with. In the words of the Jewish philosopher Hiller, "If I am not for myself, who will be for me? And if I am only for myself, what am I? If not now, when?"
- 3. Draw more practicing librarians into teaching field on a visiting basis to inject a sense of realism into library preparation.
- 4. Send the permanent teaching staffs into the field to renew their sense of the meaning of actual librarianship.
- 5. Beware of building up a library school faculty without a background of practicing library experience.

Librarian's image and status can be enhanced by several ways. First is to develop a strong sense of your own self worth and the worth of the profession. Secondly honor and respect the women and men you work with...in the words of the ancient Jewish philosopher Hiller, 'If I am not for myself, who will be for me?' And if I am only for myself, what am I? If not how, when? The best librarians, according to Melvil Dewey (1876) are no longer men of merely negative virtues. They are positive, aggressive characters, standing in the front rank of the educators of their communities, side by side with the preachers and the teachers. The people are more and more getting their incentives and ideas from the printed page. There are more readers and fewer listeners, and men who move and lead the world are using the press more and the platform less.

Challenges before the Librarianship

Prominent educationalist and authorities in India like the U.G.C. and the Ministry of Education have realized that libraries and librarians have to play a very vital and active role in the process of the education of the people. Apart from academicians, even industrialists and commercial concerns – practically all activities in the community have started feeling the need to depend upon books for solving their intellectual and vocational problems. Many people go to libraries in the numbers one can find in the markets and stores. This factor has necessitated keeping the libraries open for longer hours. It is the responsibility of the modern librarians to educate the people to read intelligently. Melvil Dewey has rightly said that the popular education can be imported with the help of education and free library.

Former librarian of University of Pune, Professor K.S. Hingwe (1985), stated that as far as teaching staff in universities/colleges is concerned, there are only three categories, while in case of librarians there is no such uniformity. If the librarian's cadre had such an uniformity, it would have been helpful in achieving the academic status at par with the teachers, otherwise there will always be some unaccounted category for which there will be no parallel in the teaching staff.

Leaving aside the first three categories of library staff, i.e., University Librarians, Deputy Library Librarians and Assistant Librarians, there is a category of Professional Assistants. This category had been equated with Assistant Lecturers in Ranganathan Committee Report. The category of Assistant Lecturers was abolished from January 1963 but the Professional Assistants Category in Libraries continues to hang in the mid-air even till today.

According to UGC wherein two categories of Professional Assistants have been suggested. Both categories will have a different set of minimum qualifications and salary scales. When implemented, this will further create a problem for the equation of Professional Assistants with teaching staff of the universities.

Secondly in USA, these are very strong professional organizations like the American Library Association of College and Research Libraries, which promote the interest of librarians. These associations supported the movement for Faculty Status for College/University Librarians. American Association of University Professors is also quite sympathetic and helpful in this regard and always extended a helping hand to the librarians. The situation in India is quite different. Professional organizations are not strong enough to exert pressure or support to the cause of academic librarians.

University and college teachers can contest and types of elections in university level, and enjoy the benefits of different positions, but librarians are not allowed to contest the elections, so they cannot hold important positions in university structure such as Senate Member, and can discuss their problems.

Whenever any committee is appointed to study the pay scales, qualifications and service condition, university librarians and college librarians are not appointed as a member but teachers working in library science department are appointed as a coordinator and committee members. These teachers are not giving proper justification to librarians.

Conclusion

As a librarian, we need unity. We certainly have specialties and these specialties require further specialization. Our profession still suffers from an inferiority complex. It is necessary to remove these inferiority complexes and achieve social standing and status to our profession. The relatively poor economic status of librarians (school and public) compared with other professions also damages the image of profession. As a profession we should work collectively and individually as much for the betterment of our fellows in librarianship.

Librarianship is certainly a long way from deteriorating into a second rate profession. It is necessary to look at ourselves and repair own professional faults in order to make sure that our libraries continue to serve effectively that society which supports them and of which they are important part

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Future of Academic Libraries: challenges and opportunities

Ramana, P.V.¹

Abstract

technological innovations, affordable high Rapid advances in bandwidth networks and explosive growth of web resources. sophisticated search engines, ever growing digital resources and changing information seeking behavior of users are greatly transforming the future of academic libraries. The present paper outlines the challenges faced by the academic libraries, discusses the changing role of librarian and strategies to be adopted to manage the future of academic libraries

Key words: Academic Libraries, Libraries, Digital Technology, Digital Environment, Digital Resources

Introduction

Digital Technologies have transformed the future of academic libraries creating new challenges and opportunities. Internet and web technologies have brought unprecedented changes in the nature and functioning of library and information resources and services environment. Digital information resources are growing enormously as they have more potential to be easily accessible simultaneously by many users. The users' priorities in information seeking pattern are changed with changing information landscape and technology. The users demand for information in digital form has increased tremendously in recent years. Academic Libraries are facing variety of critical challenges affecting their existence in modern dynamic digital environment. Libraries are evolving to multimedia information gateways or portals providing access to global information resources. Academic Libraries have become complex learning resource centres with multiple roles and variety of complex challenges.

The Important Challenges include

- o Rapid technological innovations
- o Declining library budgets
- o Increasing cost of publications
- Continuing emergence of new media formats.
- Explosive growth and use of web resources

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- Powerful and user friendly high quality search engines
- Accelerated Learning Scenario
- o Intensive use of digital resources
- Increasing competition from Internet, Online book stores, search technology and commercial publishers of information
- o Changing users' information seeking behavior and habits
- Exponential growth of open access scholarly resources on the web
- o Interactive virtual learning environment

Changing Library Landscape

Today, the libraries are increasingly viewed as outdated and under rated with the use of modern web-based services. The pressure on libraries to modernise the way of delivering their services is now intense and more demanding. The user expectations on libraries to deliver high quality, comprehensive, user-friendly new generation services have grown tremendously in recent years. The Libraries survival demands change, updation and modernisation. Libraries need to change quite dramatically to modernise almost every aspect of their operations, information resources and services in order to meet the rising users expectations of the modern world. As the world advances, the library must also evolve and redesign their activities in order to deliver highly quality, need based, value added services according to the expectations of end users (Chad, 2005).

Libraries have also come to recognize that users expect to be able to access all the available information from one search box and to get exactly the result they need because of the excellent search technology. Libraries have ambition to deliver like search engine interface. The shift from "collections to connections" and the changes in the information environment from a situation of information scarcity to information overload has together with increased use of search engines created a new breed of self-sufficient users who do not see the library as the centre of their information environment. These developments have created new working conditions for all libraries. The library collection only constitutes a small part of the relevant supply of information and the library faces increased competition from new sources of information. The end result is an increased risk of "library bypass". It is no longer necessary to visit the library in order to get the information you need (DEFF).

The information consumer frequently chooses the web over the library for information resources, despite the librarians concern about the trust worthiness of the web resources. The trend is increasing comfort with web-based information and content sources among all age groups. The information consumer uses search engines as gateways to both facts and answers. Ask – Services like Google Answer and Ask Jeeves have become self-service alternatives to traditional library reference services (OCLC, 2003).

Many surveys confirm that information consumers are satisfied with their online Many surveys confirm that information consumers are satisfied with their online Many surveys confirm that information constitutes are cutoristic with their online results. For example in 2002, Outsell Inc. surveyed over 3000 U.S. Internet results. For example in 2002, Outself file, of respondents said the open web information seekers and found that 78% of respondents said the open web information seekers and found that for of the provides of the open web provides 'most of what they need'. The fact is that information and content on the provides 'most of what they need. The fact to find and access than in physical open web is far easier and more convenient to find and access than in physical open web is far easier consumer types a term in search box, clicks at open web is far easier and more convention a term in search box, clicks a button, libraries. The information consumer types a term in search box, clicks a button,

and sees results immediately.

Changing Role of Librarian in Digital Environment

In the Modern World, the role of librarian is adapting to changing technologies, In the Modern World, the fole of notation expectations. Library professionals are information environment and customers expectations. Library professionals are information environment and customers chip to provide traditional library information increasingly responsible not only to provide services according to the increasingly responsible not only to provide according to the actual user services but also to deliver online information services according to the actual user services but also to deriver officient under great pressure to become more efficient to needs. Libraries are functioning under great LIS professionals and the needs. Libraries are functioning under green. LIS professionals need to be confident deliver more effective services to the users. LIS professionals need to be confident deliver more effective services and prepare for new challenges, deal with emerging and competent that they can properly and claim new professional roles. A well-informed competent and creative LIS professional shall play multiple evolving roles in the 21st century.

As the information industry has changed, the expectations of information users have soared and librarians have come to fear for their positions and profession. As we race into the future, librarians should begin to think about the position of the library in the new environment. LIS professionals are functioning under great pressure to keep pace with the constantly changing technological environment. Librarians must serve as technologists with multitasking skills to assist learners in creating individualized information portfolios. Librarians must develop greater technological expertise, advanced research skills and team building competencies to play the new role of library technologist in digital environment.

Libraries must assert their evolving roles in more active ways in the context of increasingly competitive markets for information dissemination and retrieval. The librarian must be a multi-skilled Knowledge Navigator constantly interacting with users understanding the diverse needs of different user groups. Librarians have to play multiple evolving and expanding roles to face many new challenges in the dynamic digital environment. A librarian must be a professional expert, techno literate, web usability expert, knowledge manager, navigator, trainer, educator, marketer, service provider and many more.

Skills Required for Changing Role of the Librarian

In the dynamic digital information environment, the role of LIS Professionals has changed from mere custodians of documents to the effective provider of customized, high quality, innovative information products and services using

latest technology. LIS Professionals have to learn and equip with wide range and variety of skills, knowledge and competencies in order to play multiple future challenging roles of Librarian responsive to changing needs of user community.

- Managerial & Leadership skills
- Library & Information Services Skills >
- Information & Communication Technology Skills >
- Internet & Web Technology Skills
- **Communication Skills**
- Teaching and Presentation Skills >
- Commitment to excellent customer Service
- Resource generation skills 1
- Commitment to Life-Long Learning 1
- Inter personal relations skills
- Marketing and Promotion Skills >
- Project Management skills >
- Time Management skills >
- Knowledge of Copyright, IPR and Cyber laws >
- Knowledge Management skills >
- 2 Creative and Innovative skills
- > Negotiation skills
- > Change management skills
- Evaluation and Assessment skills

Strategies to Manage the Future of Academic Libraries

Rapid Technological innovations have reinvented the roles, responsibilities, and resources of academic libraries. They continue to evolve and remain at the heart of academic Institutions. Library's role in supporting research and education will require providing access to all kinds of learning resources in all formats to all the users. Academic libraries must adapt the following strategies to achieve necessary transformation and emerge as vital learning resource centres to keep pace with the changing needs of users in the digital environment.

Effective Utilization of Digital Technology

Libraries need to make effective use of technology in supporting research and education. Libraries must adopt new technologies, methods and approaches to keep pace with the changing demands of institutions, faculty, and students. The Library holds a unique position in an academic institution as it is considered as the logical extension of the class room. If the library is to remain a dynamic learning resource centre, it must support the learning and education process of academic community in several new ways. Libraries must offer innovative services that continually stimulate users for the advancement of knowledge. The integration of new information technology in to library has become the catalyst that transforms the library into more vital and critical intellectual learning centre in academic the library into more vital and citical interview exploit new technologies, if they institutions. Academic libraries must extensively exploit new technologies, if they institutions. Academic libraries must extensively and a dominion definition of the institutions are to fulfill their potential in adding with those institutions into the future (Fare to fulfill their potential in auding takes institutions into the future (Freeman, academic mission and in moving with those institutions

2009).

Create Comfortable Learning Environment

Academic Libraries need to develop an elegant, comfortable and conducive Academic Libraries need to develop attract more number of users. They must learning environment in the library to attract more number of users. They must learning environment in the notary to the learning environment. Libraries renovate provide clean, bright, warm and well-lit learning environment. Libraries renovate provide clean, oright, want and not and provide more comfortable spaces to facilities to incorporate technology and provide more comfortable spaces to facilities to incorporate technology and staff needs to be professionally more promote learning environment. Library staff needs to be professionally more promote learning environment and helpful in order to encourage the users to visit the library. If users visit the library, they will be aware of the facilities, resources and services offered to them and thus increase the usage of the library.

Managing Digital Information Resources

Digital information resources can play a critical role in the learning of today's users. Libraries used to integrate more multimedia digital resources in to their searchable content. Academic Libraries need to develop digital collections and make them accessible on the network. Digital information resources allows less space, less stacks and more easily accessible by many users. Digital collections include material converted from print to digital, data bought and mounted locally and original digital publications.

Digital collections are of two types: Digitalized special collections (materials converted from print to digital) and born-digital collections. Born-digital collections include learning object repositories, institutional repositories, online journals, university press imprints and online collaborative environments. Modem scholarly resources tend to be high-quality born digital resources which allow more variety in information delivery including print-on demand services. Modem information seekers want easy and seamless access to the largest number of sources. The libraries should provide as many options as possible to provide easy access to digital collections (Texadata, 2006).

Academic libraries must make searching the catalogue more like using search engines for easy and better access to their resources. Academic Libraries can add value to key pages of their websites by including interactive tutorials on how to find information and providing links to selected quality information resources.

Development of Institutional Repositories

Digital technologies have opened the door to a host of new possibilities for sharing knowledge and generated entirely new forms of content that must be made broadly available. This shift demands that universities take on a much more active role in ensuring dissemination of the knowledge produced by their institutions – both now and into the future (Lynch, 2009).

Academic Libraries must build institutional repositories (IR) by digitalizing their institutions' Journal articles, book chapters, theses, and research reports. These repositories are made accessible to the academic community. IR provide good foundation for the future of academic libraries.

Offering Virtual Reference Service

Today, Libraries face many challenges in delivering reference service to users. Since large number of reference sources are accessible online on the web and users prefer user friendly search engines, libraries need to offer virtual reference services. Technological developments have enabled libraries to provide Virtual Reference Service (VRS). Virtual Reference Service is responsive to users need for convenient access to reference service. Users can submit their reference queries to the library at anytime from anywhere in the world. Libraries must integrate VRS with the rest of the reference services. Virtual reference is reference service initiated electronically, often in real-time, where patrons employ computers or other Internet technology to communicate with reference staff, without being physically present. Communication channels used frequently in virtual reference include chat, videoconferencing, and voice over IP, co-browsing, e-mail, and instant messaging. Virtual reference queries are sometimes followedup with telephone, fax, in-person and regular mail interactions, even though these modes of communication are not considered virtual. (Reference and User Services Association, 2004). Libraries must plan for virtual services to provide better complement to their physical services. They must explore and find ways to get material to the users rather than making them to come to library.

Developing Digital Library Services

Libraries must high-quality digital information services to the users. Libraries must redesign their roles and develop new ways of offering services to fulfill the overall mission of library. Libraries must focus more on the user's needs and their services and less on the traditional activities.

Libraries do not have control over publicly available information. Today, library users have many alternatives for information access. The Google search engine is the first choice of many for information needs. Google scholar, a free search engine has become popular for scholarly content. Major newspapers publish on line with up – to – the minute coverage. Commercial publishers have begun to offer information services direct to the consumer bypassing the library. Many open Access Resources containing scholarly content are available free on the web, open Access Resources containing scholarly content are available free on the web. The survival and success of academic libraries depends on the development of new services responsive to the needs of their users. In order to evolve relevant and new services, we must understand, embrace and adapt to modern times. Academic new services, we must understand the needs and desires of their users and Libraries must thoroughly understand the needs are services to meet those needs.

(Texadata, 2006)

Teaching Information Literacy Skills

British Library Google Generation report states that while we tend to think of our students as being "digital natives" i.e. brought up on the internet from a young age, this does not mean that they are necessarily information literate. The report highlights that many students and researchers don't have the idea of different sources and types of information and they have difficulty in evaluation the quality of information and do have not a mental map of the information landscape. This has huge implication for librarians – and demonstrates the importance of information literacy programmes which are becoming ever more essential in today's world of information overload.

The digital information universe has become so complex with the use of digital technology and digital resources. It is becoming increasingly complicated to process, discover, find and retrieve relevant authoritative reliable information timely. Information literacy programmes in the form of training and learning support need to be delivered to the users either in person or in groups. Librarians should provide information literacy training and guide users to navigate the digital resources in the discovery and use of relevant information. Information literacy skills should be integrated into the academic curriculum of different courses. Librarians must adopt improved information literacy methods for teaching students by developing more visual oriented teaching aids.

Information literacy should be given more attention in academic libraries in digital environment. They must provide IL service and guidance in more useful ways in making effective use of their resources and services.

Extensive Staff Training on Digital Resources and Technology

One of the most important requirements is the training of library staff on different digital resources and technologies. Today, Librarians face a number of challenges that will make them to update their knowledge and learn continuously. Lifelong employability but also enables staff to keep pace with rapid technological developments. Continuing education and training helps librarians to keep abreast with latest developments their field of activity to enhance their job competencies. Training improves their perception, attitude, skills, knowledge and competencies. Librarians should be given extensive training on digital technology and resources for their effective utilization. They must be encouraged to do part time studies, attend professional trainings, e-learning courses, seminars, conferences and workshops.

Promote Access to Open Access Resources

Advances in new technologies especially the internet, web and e-publishing enabled opening up free access to various information resources. Free availability of scholarly information and knowledge plays a vital role for the research and development of all sectors of the society. Open access is providing free online access scholarly research literature and other publications without any restrictions. Open access provides great opportunities for researches to improve the quality of research and scholarship. Open access can be provided through many sources such as open access books, Journals, repositories, tutorials and open course ware. Today, huge amount of open access resources are available across the globe. Libraries need to discover and identify the relevant global resources and provide gateway access to their local users.

Marketing Library Resources and Services

Libraries offer many products and services to the users. Marketing is essential to promote the use of library collections, products and services by creating awareness among the users. Promotional activities will change perceptions, increase the library usage and improve the value and image of library. Public lectures, workshops and seminars need to be regularly organized to promote the use of library resources and services.

Most library users must go virtually or physically to the library. Library contents and services are rarely communicated to the user. Libraries need to focus more attention on the user centered services rather than library operations. Libraries can use different methods such as telephone, e-mail, internet, newsletters and leaflets to promote their resources and services. Library must give priority to provide excellent customer service to enhance its image in the institutions. Libraries have to alter their marketing strategies to encourage more and more creative uses of digital information resources.

Conclusion

The increasing use of technology has a significant impact on the future of academic libraries. New technologies have tremendously increased the convenience and accessibility of global information. The greatest challenge for librarians is how to manage rapid and constant technological change in academic

libraries. They must continually adapt new technologies which present both challenges and opportunities in order to respond to growing complex information needs of the end users. Academic libraries must act as a local gateway providing easy access to global information at users desktop. Academic libraries need to provide virtual reference service, access to open access resources, teach information literacy and technology classes to their users and move towards more virtual working environments in future. The future of academic libraries is bright provided the librarians have all the required skills and competencies to intelligently integrate digital technologies for the empowerment of their users.

Campbell (2006) states that over the next decade, colleges and universities will have to make critically important practical and policy decisions about the function of libraries, about the space devoted to libraries, and about the roles of librarians. If these decisions are made wisely, the academy may be able to maintain much of the ineffable, inspirational value associated with academic libraries while retaining their practical value through altogether transformed activities and functions built upon a new mission designed for a more digital world.

In future, academic libraries will remain indispensable for knowledge seekers in complex digital information universe. Academic libraries should change readily in response to the changes in technological innovations, information resources and the users' demands. Developing digital information resources, services and comfortable learning environments that are responsive to needs of users can be achieved by making conscious effort to address problems and transform the current situation in libraries. They need to redefine their policies, practices, activities, resources and roles to keep pace with changing end-users expectations. To respond easily to the frequency and large scale rapid changes, academic libraries need to be more dynamic and flexible and need to have highly skilled competent librarians. Librarians must become change agents and assume a proactive role in making effective use of all the technologies and their capabilities in digital environment.

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PART II – SPECIAL SESSION

Total Quality Management (TQM): A Challenge To University Libraries

Session Chair - Prof. Colin Pieris

Director Quality Assurance and Accreditation Council University Grants Commission

User Expectation versus User Perception of Service Quality in

University Libraries: a case study

Somaratna, S.D.¹, Peiris, C.N.² and Jayasundara, C.³

Abstract

User expectations and perceptions are important measures of service quality in any service organization. The library as one of the main service organizations in any University the assessment of service quality through user perspectives is very important. It provides a prompt feedback for libraries to assess and improve their services to users. The aim of this research was to measure the desired service expectations and actual service perceptions of the users of the University of Colombo Library System. As the initial step, 116 different service quality attributes were identified from previous studies done all around the world. Of these 35 attributes which are most appropriate to the Sri Lankan University Libraries were selected by an expert panel evaluation. The selected attributes were incorporated with the SERVOUAL model and a robust instrument was developed to ascertain the views of library users about service level. This study was conducted from May 2008 to end of June 2008 as a user survey in the University of Colombo library system covering the main library and its two branch libraries. Science Faculty Library and the Medical Faculty Library. A total of 614 questionnaires were received indicating 74% overall response rate. Gap analysis was used to determine the service quality gap between desired service expectations and actual service perceptions and the findings of this study give a good insight to improve user satisfaction providing a better service in identified areas.

Keywords: Service Quality, Gap Analysis, User Expectation, User Perception, User Satisfaction, SERVQUAL.

Introduction

The concept of "Quality" has emerged and remained as a dominant theme in management thinking since the 1940s.

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³Dr. C.C. Jayasundara, University of Colombo, Sri Lanka <u>chaminda@lib.cmb.ac.lk</u> While the initial approaches emerged from American theorists and practitioners, early commercial applications were predominantly amongst Japanese companies. More recently organizations throughout the world have begun to embrace the More recently organizations throughout the world have begun to embrace the theories and practices of quality. The quality of tangible products is usually easy theories and practices of quality. The quality of tangible products is usually easy to check and easy to define. It is more complex, when talking about service quality. It begins with the design and is present through the whole process of delivery and performance, with assessment during the delivery process. The measurement of service quality is difficult, due to the minute differences in customers' ways of perceptions and expectations.

An Academic Library is a part of a University which delivers products personally to the customers. The primary purpose of it is to support teaching, learning, research and other academic programs of its parent organization. In a manufacturing concern, the customer is remote where as in a service organization like a University Library, service producers and consumers meet face to face. Here the customer is not an outsider, but part of the academic community. As this study concerns libraries, the "customer" will be referred to as the "user" as several other authors have used, when referring to the customer in library settings (Poll, 2003; Cullen and Calvert, 1995; Sayo, 2006).

Most traditional measures of academic Library quality such as collection size are considered to be of secondary importance, since they represent such a different approach to managing the library. Service quality has become an increasingly popular topic both in library literature and at professional gatherings (Nitecki, 1996). Service quality has been defined in different ways in different contexts. The concept of service quality that is used for library evaluation in the words of Calvert (2001) is "...to examine the difference between a customer's expectations and the customer's perceived sense to actual performance" (p.732). The most pervasive definition of quality currently in use is the extent to which a product or service meets and or exceeds a customer's expectations (Parasumann et al., 1985). As described by Wisniewski and Wisniewski (2005) "The SERVQUAL instrument was specifically designed to measure service quality using both the gap concept and service quality dimensions, and was designed to be transportable, with minor adaptation, to organizations in any service sector" (p.220). According to Cullen (2001), the modification of SERVQUAL model was introduced to academic libraries by Hernon and Altman. They used the data collected from surveys and focus groups to refine the SERVQUAL model in order to develop a robust survey instrument for use specifically in library and information services.

Calvert and Hernon (1997) also state that "Most typically, service quality is defined in terms of reducing the gap between user expectations and actual service provided" (p.408). There is ambiguity regarding the concepts of service quality and satisfaction. However Hernon (2002) concludes that,

"...service quality focuses on the interaction between customers and service providers, and the gap or difference between expectations about service

provision and perception about how the service was actually provided. Satisfaction, on the other hand, does not involve gap analysis" (p. 225).

In their article "Surveying Service Quality within University Libraries" Calvert and Hernon (1997) describe various measures that librarians can utilize to measure the actual level of services provided thus allowing them to compare user expectations measured by the survey with the level of actual service rendered by library staff. The authors recommend supplementing the survey with focus groups that probe user expectations further by gaining more detailed insights into the perceptions of a particular constituent group. They also suggested using focus groups to probe the reactions of library staff to the survey results and to help develop new ways to satisfy user expectations (Calvert and Hernon, 1997).

According to Filiz (2007), satisfaction is an important measure of service quality in libraries. Students' perceptions about libraries seem to have been largely ignored by library management in developing countries. The assessment of service quality provides an important feedback for libraries to assess and improve their service to users. As Filiz (2007) states that,

"The survival of a library very much depends on the benefits it brings to users. Its existence will be in question when users begin looking for alternatives to library services. One way to show value is by providing quality service. It is therefore important for the library to be aware of changing user expectations, and to continually strive to provide quality service to its users" (p.9).

Altman and Hernon, (1996, cited in Rowena, 2001) introduced the idea of "user satisfaction" to higher education libraries. According to them service quality in higher education libraries is usually associated with the question of user satisfaction, which in turn, is based on user perceptions of service quality. The relationship between service quality and customer satisfaction is a complex one. Service quality is defined as a component of user satisfaction. Elliot (1995), as cited by Rowena (2001), also uses this term and defines user satisfaction as the emotional reaction to a specific transaction or service encounter. He points out that satisfaction may or may not be directly related to the performance of the library on a specific occasion. Customers can receive an answer to a query but be dissatisfied because of an upsetting or angry encounter. Conversely, although the query might remain unanswered, another customer might feel satisfied because the encounter was pleasant, and the helper was interested and polite.

The importance of quality assessment of the higher education sector including University libraries is now being discussed widely in Sri Lanka. Hence the results obtained from this study will help the librarians in understanding Institutional and user differences and similarities, to identify the user problems and reduce the gap between user perception and expectation. Hence this study at the University of Colombo will be an initiator and basis for future research on this subject in the University Library sector in Sri Lanka.

The aim of this research was to assess the service quality of the University of The aim of this research was to assess the conversity of the Oniversity of Colombo library system through user perspectives. Following objectives were set to achieve that aim of the study.

- i. To explore the users' expectations for excellent service quality from the University of Colombo Library System
- ii. To determine the users' satisfaction in relation to service performances in the University of Colombo library system
- iii. to determine the service quality gap (expectation- performance) of the University of Colombo Library System

Method of Study

To determine user expectations and satisfaction of the University of Colombo Library System a user survey was conducted in the library. The University of Colombo had a total student population of approximately 12158 in the year 2008 and there were 475 academic staff members (University Grants Commission, 2008). The study sample was selected randomly. A total of 855 printed questionnaires were distributed to the library users of the University of Colombo. The questionnaire was distributed directly to users during approximately four weeks a period from end of May 2008 to end of June 2008. Six hundred and thirty four usable questionnaires were received indicating 74% of overall response rate.

After an extensive review of literature on service quality the attributes relevant to Academic Libraries in Sri Lanka were selected by a panel of experts and the questionnaire was prepared using the 35 selected items most appropriate to the Sri Lankan Academic Library environment For this study, SERVQUAL was adapted to examine the service quality of the library of the University of Colombo. The questionnaire thus constructed was to assess users' expectations and satisfaction. To measure user expectations and satisfaction seven point Likert scale was used with "1" being "strongly disagree" and "7" being "strongly agree".

A pilot test was conducted to assess the reliability of the attributes and ensure that the wording, format, length and sequencing of questions were appropriate. Reliability analysis was employed to test the internal consistency of the questionnaire. The reliability coefficient Cronbach's Alpha for the user expectation scale was 0.921. The Alpha value was 0.865 for the perception scale.

Findings: Ranked Expectation verses Performance

Table 1 demonstrates the relationship between respondents' perceived importance in each of the thirty five attributes ranked from 1 to 35 with their corresponding performance ranking. The five most important areas expected by users were (1) Relevance of information received (6.806 out of 7), (2) Access to electronic journals (6.731 out of 7), (3) Adequate lighting (6.660 out of 7), (4)Convenient opening hours (6.630 out of 7) and (5) Giving users individual attention (6.623 out of 7).

Attribute	Expectatio A score Mesa	Rank expects	Perform	Biele"
Relevance of information received	6.806	1	5.645	3
Access to electronic journals	6.731	2	4.033	35
Adequate lighting	6.660	3	5.369	14
Convenient opening hours	6.630	4	4.503	28
Giving users individual attention	6.623	5	5.294	16
Dependability in handling users' service proble	6.620	6	5.293	17
Knowledgeable about user questions	6.620	7	5.561	7
Courteous, polite and friendly staff	6.617	8	5.593	4
Providing services at the promised time	6.615	9	5.562	6
Accuracy of information received	6.607	10	5.817	1
Performing services right the first time	6.585	11	5.438	10
Availability of staff when required	6.584	12	4.871	22
Willingness to help users	6.583	13	5.566	5
Online catalogue is easy to use	6.577	14	4.284	32
Staff who instill confidence in users	6.572	15	5.419	12
Availability of required information	6.560	16	4.732	26
Convenient access to library collection	6.559	17	5.437	11
A pleasant comfortable and inviting location	6.556	18	5.047	19
Currency of information received	6.555	19	4.917	21
Having the user's best interest at heart	6.544	20	5.127	18
Online catalogue is an accurate source of information	6.541	21	4.438	30
Modern equipment(photocopiers, scanners, printers, etc.) in good condition	6.536	22	4.313	31
Oujet study areas	6.528	23	4.502	29
Clear directional signs for collection	6.495	24	5.539	8
Making users feel secure about transactions	6.482	25	5.519	9
Approachable staff	6.463	26	5.373	13
Keeping users informed	6.459	27	4.776	25
Neat, professionally appearing staff	6.455	28	5.301	15
Well organized web page	6.393	29	4.190	35
Condition of library materials	6.377	30	4.974	20
Understanding the needs of users	6.375	31	4.868	23
Visually appealing facilities	6.355	32	4.083	34
Library guides brochures and alert services	6.279	33	4.528	21
User education programmes	6.191	34	4.788	24
Feel safe and secure in the library	5.982	35	5.708	12

Table 1: Ranked expectation verses performance

The five least important areas were (1) Feel safe and secure in the library (5.982 out of 7) (2) User education programmes (6.191 out of 7), (3) Library guides, brochures and alert services (6.279 out of 7), (4) Visually appealing facilities (6.355 out of 7) and (5) Understanding the needs of users (6.375 out of 7).

Ranked Performances verses Expectations

Table 2 shows the relationship between the library's performance in each of the thirty five attributes ranked from 1 to 35 with their corresponding expectation ranking. The five highest performance areas are (1) Accuracy of information received (5.817 out of 7), (2)Feel safe and secure in the library (5.708 out of 7), (3) Relevance of information received (5.645 out of 7), (4) Courteous, polite and friendly staff (5.593 out of 7) and (5) Willingness to help users (5.66 out of 7).

The five lowest performance areas are (1) Access to electronic journals (4.033 out of 7), (2) Visually appealing facilities (4.083 out of 7), (3) Well organized web page (4.190 out of 7), (4) Online catalogue is easy to use (4.284 out of 7) and (5) Modern equipment (photocopiers, scanners, printers, etc.) in good condition (4.313 out of 7).

Ranked Gap Analysis

The gap analysis provided insight into the gap between the importance of the library services to the users and the libraries' performance as perceived by respondents.

As seen in table 3, the five areas with the more significant gaps between user expectations and service quality for the thirty five attributes are (1) Access to electronic journals (gap score 2.698, with an expectation ranking 2/35)), (2) Online catalogue is easy to use (2.293, with an expectation ranking 14/35), (3) Visually appealing facilities (2.272, with an expectation ranking 32/35), (4) Modern equipment (photocopiers, scanners, printers, etc.) in good condition (6.536, with an expectation ranking 22/35) and (5) Well organized web page (6.393, with an expectation ranking 29/35).

The five areas with the smallest gaps between user expectations and satisfaction for thirty five attributes were (1) Feel safe and secure in the library (0.275, with an expectation ranking 35/35), (2) Accuracy of information received (0.789, with an expectation ranking 10/35), (3) Clear directional signs for collection (0.956, with an expectation ranking 24/35), Making users feel secure about transactions (0.963, with an expectation ranking 25/35) and Willingness to help users (1.017, with an expectation ranking 13/35).

Discussion

The desired service expectations of users reflect that the users required relevance and accurate information that matches their needs with E journal access facilities. They need adequate light to do their studies in the library and expect convenient opening hours to access to the library. They also expect from the staff individual attention when they encounter a service problem and also dependability when handling user questions. The staff who is courteous, polite and friendly staff providing services at the promised time and has knowledge to answer their questions is an asset to the library. These are their other expectations from the library staff that are included in the first ten user expectations.

These findings are very much similar to the survey results of the University of Hong Kong libraries in 2004 (Woo, 2005). According to Woo (2005), the highest expected service attribute was related to books in your discipline or relevance of information as identified by this study too. Attributes related to electronic resources, convenient opening hours and staff related attributes such as knowledgeable staff and the provision of services at the promised time are also included in the first ten expectations (Woo, 2005) agreeing with the results of this study. Deviating from our user expectations users of Hong Kong libraries are more concerned about the online catalogue and the library web site giving them high expectation ranks.

The service quality attributes "staff with the knowledge to answer user questions" was one of the higher user expectations all around the world (Nimsomboon and Nagata, 2003; Filiz, 2007). It is interesting to note that both University of Colombo library users and University of Hong Kong library users have ranked library user education programmes and library guides brochures and alert services as the least expected service quality attributes. This proves that user expectations related to staff attributes are common to al users without a cultural deviation or a technical advancement. At the Association of Research libraries' (ARL) symposium on service quality in October 2000, Calvert compared studies of customer expectations in China and New Zealand to determine if culture is a factor that influences service expectations. The results suggested that national culture was not a factor and that library customer expectations are similar in the United States, New Zealand, Singapore and the People's Republic of China (Calvert, 2001). According to Calvert (2001),

"there is much potential for International collaboration on assessing library service quality as seen from a cross-cultural study comparing perceptions of service quality among library users in New Zealand and China and unequivocally concluded that there are global commonalities in the way users think about library service quality. Marked similarities in results show that there is perhaps a global set of customer expectations that can be used to measure academic library service quality" (p.750).

User satisfaction reflects that the users of the University of Colombo library are User satisfaction reflects that the users of the owner of information they received generally satisfied with the Accuracy and relevance of information they received generally satisfied with the Accuracy and reference when using the library and are from the library. They always feel safe and secure when using the library and are from the library. They always teel sale and sector directional signs for the also satisfied with sign posting that indicate clear directional signs for the also satisfied with sign possing that increase of the staff related attributes such as collection. They are highly satisfied with staff related attributes such as collection. They are highly satisfied that the ball of the sources such as Courteous, polite and friendly staff, willingness to help users, providing services Courteous, polite and menuly stant, while about user questions, making users feel at the promised time, knowledgeable about user right the first it at the promised time, knowledgeable about transactions and performing services right the first time. Users' secure about transactions and performing services right to the West (2006). secure about transactions and performing our received right and the Unic. Users' satisfaction on staff related attributes are parallel to the Woo (2005) study. satisfaction on stall related attributes are planet readiness to help users and the staff are knowledgeable to answer user questions are ranked in the top most position of the ranked performance list in both studies. It is important to note that in the University of Hong Kong library (Woo, 2005) and Finish academic libraries (Filiz, 2007) users are more satisfied with Library catalogue, web page and quality of the information they received (Woo, 2005, Filiz, 2007) ranked them as highly satisfied service quality attributes while the library users in the University of Colombo ranked them as less satisfied service quality attributes.

This study on measuring service quality has principally focused on how to meet or exceed users' expectations. The findings illustrate that the users have higher expectations than perceptions, which lead to the gap between expected service and perceived service. The service quality gap explains the difference between what the user expected to receive from the service and what they believe they actually did receive. This is significant because, when the perceived service falls short of the customer's expectations, they are found to be disappointed and dissatisfied. According to Filiz (2007), the concept of measuring the difference between user expectation and perception in the form of the SERVQUAL gap score proved very useful for assessing levels of service quality. This study applied an adopted SERVQUAL instrument to measure service quality of the University of Colombo library system.

According to the results of gap analysis, the larger gaps were related to Eresources and library catalogue. The largest gap of all was "Access to electronic journals". Similar results were encountered in Hong Kong University libraries and according to the survey results in Hong Kong university libraries their second largest gap score was for "electronic resources is accessible from my home/ office" (Woo, 2005). The possible reason for the largest gap, access to electronic facilities. Due to financial constrains now Sri Lnakan University libraries rely on journals. Due to this reason, the majority of the library users are disappointed and to the largest gap score of desired service expectation and actual service there is an urgent requirement for a national level solution to overcome this problem. The solution could be an establishment of a financially strong and sustainable national level consortium.

Large gap scores were found for the attributes related to the library catalogue; online catalogue that is easy to use and it is an accurate source of information. Users face difficulties when searching library materials due to their poor searching ability via the library catalogue and inadequate knowledge of the arrangements of the library collection. Similar results were obtained from the study done by Filiz (2007) at Osmangazi University and Anadolu University, the largest gap score was found in his study for "an online catalogue easy to use". Users' knowledge of both the catalogue and the shelf arrangement should be enhanced via ongoing library orientation programmes parallel to the undergraduate curriculum.

Large gap scores were also found for attributes related to library collection and ease of access by giving high ranks to availability of required information. These sections were amongst the most problematic areas and users seem to be dissatisfied with the available collection. Answers to open ended questions revealed that insufficient copies of books, inadequacy of latest books, not enough journal titles and re-shelving problems were significant among other comments as the reasons for this large gap. Therefore there is a need to increase the number of copies of books with a greater demand and a need to update the collection by adding new editions. To achieve this library allocations for books and journals should be increased.

Conclusion

This study which measured both the user expectations and satisfaction gave a better picture of how well the library stands as a service organization. Services that are of high importance, but with poor performance, should be addressed much sooner than those of low importance. Today during this information era the survival of a University library very much depends on the benefits it brings to users. Its existence will be in question when users begin looking for alternatives to library services. It is therefore important for the library to be aware of the changing nature of user expectations and to continually strive to provide quality service to its users.

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Attribute	Performance			
Burr	score mean	performance	- Alexandre	
finformation received	5.917		and the ment	
Accuracy of information received	5 709	1	6.607	10
Feel safe and secure in the normy	5.645	2	5.982	35
Relevance of information received	5.502	3	6.806	1
Courteous, polite and mendry	5.595	4	6.617	8
staff	5 566			
Willingness to help users	5.560	5	6.583	13
Providing services at the profilised	5.502	0	6.615	9
time	5 561			
Knowledgeable about user	5.501	1	6.620	7
questions	5 530	0		A CONTRACTOR
Clear directional signs for	5.539	8	6.495	24
collection	5 510	0	6 100	-
Making users reer secure about	5.515	9	6.482	25
transactions	5 438	10	(505	
Pertorning services right the mat	5.450	10	0.080	n
time	5 437	11	6.550	17
convenient access to normy	5.157	11	0.339	17
Staff who instill confidence in	5 419	12	6 572	15
Starr who histin confidence in	5.115	12	0.572	IJ
Approachable staff	5 373	13	6 463	26
A deguate lighting	5 369	14	6 660	3
Next professionally appearing	5 301	15	6.455	28
staff	0.001	1.5	0.155	20
Giving users individual attention	5.294	16	6.623	5
Dependability in handling users' se		17	1200000	6
problems	5.293		6.620	1 1 1 1 1 1 1 1 1 1 1
Having the user's best interest at	5.127	18	6.544	20
heart			C. C. C.	
A pleasant comfortable and	5.047	19	6.556	18
inviting location				
Condition of library materials	4.974	20	6.377	30
Cuttency of information received	4.917	21	6.555	19
Availability of staff when required	4 871	22	6.584	12
Understanding the needs of users	4 868	23	6.375	31
User education programmes	4.000	24	6.191	34
Keeping users informed	4.776	25	6.459	27
Availability of required	4.732	26	6.560	16
information	4.752		1 manually	
Library guides brachures and	4.528	27	6.279	33
alert services	4.520		- Aller Charles	
Convenient opening house	4 503	28	6.630	4
Quiet study areas	4.503	29	6.528	23
Online catalogue	4.302	30	6.541	21
Source of information	4.450	S San San San	Salar Bally	- 22
Modern emission	1313	31	6.536	122
	4.515	-		

scanners, printers, etc.) in good	T			1
Online catalogue is easy to use	4.284	32	6.577	14
Well organized web page	4.190	33	6.393	20
Visually appealing facilities	4.083	34	6.355	37
Access to electronic journals	4.033	35	6.731	12

Table 3: Ranked Performance verses Expectations

Attribute	Mean	Rank	Man			
	Expectation	E	Performent	Rank	Menn	ST MAN
	(E)		(P)	P	Gap	
A acress to electronic journals	6.731	2	4 033	26	(E-P)	
Access to catalogue is easy to	6.577	14	4 284	35	2.698	1
Unine can c			1.204	32	2.293	2
Visually appealing facilities	6.355	32	4 083	24		
Visuari)	6.536	22	4 313	34	2.272	3
-quipment(photocopiers,			1.515	31	2.223	4
equipments, printers, etc.) in						1.0.800
good condition			1 Contraction			
Well organized web page	6.393	29	4.190	12	2 202	
Convenient opening hours	6.630	4	4.503	28	2.203	2
Online catalogue is an	6.541	21	4.438	20	2.127	6
accurate source of				50	2.102	1
information				1	1 Straight	
Quiet study areas	6.528	23	4.502	20	2.026	0
Availability of required	6.560	16	4.732	26	1.020	8
information				20	1.020	9
Library guides, brochures and	6.279	33	4.528	27	1 750	10
alert services			A STATE OF TRANSPORT	-	1.750	10
Availability of staff when	6.584	12	4.871	22	1 714	11
required		1000000			1.714	1
Keeping users informed	6.459	27	4.776	25	1 683	12
Currency of information receive	6.555	19	4.917	21	1.638	13
A pleasant comfortable and	6.556	18	5.047	19	1.508	14
inviting location						
Understanding the needs of	6.375	31	4.868	23	1.507	15
users	012.10					
Having the user's best	6.544	20	5.127	18	1.417	16
interest at heart	010 11		COLUMN SERVICE		1	
Condition of library materials	6.377	30	4.974	20	1.403	17
User education programmes	6 191	34	4.788	24	1.403	18
Giving users individual	6.623	5	5.294	16	1.329	19
attention	0.025	-		1000	Children Sta	
Dependability in handling up				1	10 352	20
problems	6 620	6	5.293	17	1.327	
Adequate lighting	6 660	3	5.369	14	1.291	21
Relevance of information racei	6.806	1	5.645	3	1.161	22
Neat professionally	6.455	28	5.301	15	1.154	23
appearing stoff	0.433	20	0.001	1.1.2		
Staff who institue Ch	(572	15	5419	12	1.152	24
in users	0.572	15		1 Contra		
Performing	(505	11	5 438	10	1.148	25
first time	0.385	11				
Conveniore	1.000	17	5.437	11	1.123	26
collection	6.559	17		1		
Approachable	C 162	26	5 373	13	1.090	21
Knowledge li	6.463	7	5.561	7	1.059	28
about user	6.620	1				

questions Providing services at the	6.615	9	5.562	6	1.053 29
promised time Courteous, polite and friendly	6.617	8	5.593	4	1.024 30
staff	6 583	13	5.566	5	1.017
Making users feel secure	6.482	25	5.519	9	0.963 31
Clear directional signs for	6.495	24	5.539	8	0.956 33
Accuracy of information receiv	6.607	10	5.817	1	0.789
Feel safe and secure in the library	5.982	35	5.708	2	0.275 35

Table 3: Ranked Gap Score (Expectation- Performance)

Implementations of TQM in Libraries

Iylin, D. Fennala Agnes¹

Introduction

Quality management has become increasingly important for business organizations, government, military, educational institutions etc., to stay competitive within their own community. The concepts of 'quality' "quality management" and quality assurance" have become the buzzwords. The concept of quality has been associated with respect to customer satisfaction. The word quality means degree of excellence, conformance with requirements, the totality of characteristics of an entity that bear on its ability to satisfy stated or implied needs. fitness for use, freedom from defects, imperfections or contamination and etc., The quality of the functions and services of the" library as a service center" is optimized in accordance with library users needs. Quality management is organizing and administration of quality policy, planning to improve the quality of products and services, improving the efficiency in functions/services, continuous user interaction for feedback strategies to introduce improvements proactively. Quality assurance provides benefits in service to the user, use enhancement. improved user relations, improved organization and efficiency within the library and improved staff morale.

Total Quality Management (TQM)

History

In 1950s W. Edwards Deming, an American statistician and management theorist, proposed his "Total Quality Management" (TQM) as a measure to improve Japanese war torn economy. There was a dramatic economy growth in Japan. The Americans found that there was a reduction in its own world market share in relation to Japan, American business rediscovered Deming during 1980s. Two TQM experts Joseph Juran and Philip Crossby immensely contributed to TQM theory and proposed tools and models. TQM is both a philosophy and a set of guiding principles that represent the foundation of a continuously improving organization, and the degree to which the needs of customer are met, now and in the future. Key components of TQM are employee involvement and training, problem solving teams, statistical methods, long term goals and thinking, and recognition that the system, not people, produces inefficiencies. Libraries can benefit from TQM in three ways: breaking down interdepartmental barriers;

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Redefining the beneficiaries of library services as internal customers (staff) and external customers (patrons); and reaching a state of continuous improvement (Jurow & Barnard, 1993).

An Agenda for implementing TQM in Libraries

Before implementing TQM in libraries it is essential to explore some of the issues that need to be addressed on the road to a successful implementation of TQM.

Defining Quality in Libraries

Quality must be defined in terms to which individuals teams, sections can relate, identify and measure that is appropriate in their context. Total quality in the libraries covers the entire gamut of library activities. Being dynamic in nature, it is associated with all the products(catalogue, current contents, accession lists, bibliographies, handbooks, bulletins and also printouts);provision of services, processes people and place(environment)that meet and exceed user expectation (Sai-Sravan,1997).

Quality aspect in library services can be based on a global judgment of service quality. Library services quality is a precondition for customer satisfaction. (Heron, 1996).Zeithml, Parasuraman and Berry (1990) identify ten important aspects of service quality. An attempt has been made to adopt those aspects with required changes to illustrate the dimensions of library service quality.

Quality and Library Effectiveness

Effectiveness is an earlier term for quality in libraries that dovetails neatly with existing research in library science (Pritchard, 1996). Library effectiveness is concerned with the effect a library has on its users. How that effect can be measured and can be made more positive? What librarians contribute to the fulfillment of their parent bodies' mission and goals? These questions have created interest in the past for library effectiveness, and are leading to a similar interest in library quality (Brophy, 1997).

The work of Richard Orr (1993) raised two issues:

(i). How good is this library? This question relates to quality. It is the capacity of a library to meet the requirements of users .Buckland (1988) prefers to call this as capability.

(ii). How much good does this library do? This question relates to value and should be answered by reference to the beneficial effect accruing from its use. From effectiveness point of view quality (capacity) and value are separate but

from quality management point of view both the questions are not separable. Customer can judge both quality and value (Brophy, 1997).

Measuring Quality

For successful implementation of TQM there must be some mechanism to get feedback from the customer. User complaints, suggestions, customer surveys, benchmarking, employees surveys and suggestions boxes are necessary for measuring quality and effectiveness. Some research projects consider user satisfaction as a global judgment and suggested three questions to measure.

- (i). What are we doing that you particularly like?
- (ii). What are we doing that you really do not care about?
- (iii). If we could do one thing to improve, what should it be? (Hemon, 1996).

Academic libraries view satisfaction from three perspectives i.e., interaction with employees, the services used and the system. Evaluators also view satisfaction from three perspectives, i.e.

- (i). Generic measurement based on general questions.
- (ii). Attribute measurement (knowledge, ability, self confidence, helpfulness, friendliness, patience, interest, enthusiasm of staff and relevance, amount, completeness and helpfulness of the product or information).
- (iii). Specific measurement combines both the above criteria (Hernom, 1996). Library literature on TQM gives priority to users satisfaction and the value of knowledge woven into the final product i.e., information (Trazan-Herman).

For the purpose of measuring library effectiveness, (Cullen and Calvert, (1995) identify key performance indicators in university libraries as perceived by six separate stakeholders groups. The results of measurement can be used to evaluate the performance of a library and thereby determine whether or not it is effective.

The organization effectiveness literature as reviewed recently present four major approaches to organizational effectiveness.

- (i). The goal attainment model
- (ii). The system resource model

(iii). The internal process model

(iv). The constituency satisfaction model (Pritchrd, 1996)

Library efficiency is the ability to minimize the use of resources, i.e," doing things right", which is the concern of the library bureaucrats. Effectiveness is the ability in determining and doing the right things which is the concern of library leader. According to F.W Taylor efficient organizations must be effective and inefficient organization must be ineffective. This view is quite contrary to quality management (Stoner, 1996).

Library service quality can be measured by SERQUAL instrument as designed by Parasuraman. The SERQUAL consists of two sets of 22 statements. Each statement is accompanied by 7 point scale. The first set measure expectations which are formed before service is delivered and second set measure perceptions which are formed during the delivery process. Quality service in library Perceptions-Expectations (Rowley, 1996).

Classifying and Defining Customers and Stakeholders

The library staff using the output of another staff member as input is called the internal customer. The users of library services are called external customers. Individuals such as students, academic staff, support staff, university managers, the government, global society, global research communities and posterity are the stake holders of the university library (Brophy, 1997).

Customer Focus

Customer is the king and has every reason for the existence of libraries and staff. Library must endeavor to be responsive and must sense, serve and satisfy the needs and expectations of the users and also beyond that. In order to remain ahead of its customers, paper based libraries must be modernized in housekeeping operations and must be Networked" to share the resources of the other libraries. Internet, the mother of all information can provide the expertise and experience of resources globally, and one could browse the OPACS of the library of Congress be self sufficient I information resources.

Internet i.e., the library without walls can be dovetailed to enhance the library resources. Convergence of print and digital culture is the need of the hour for customer satisfaction (Tompkins, 1996)

Developing Human Resources in Libraries

In the technological environment networking, learning and teaching are continuously changing. There seems to be a shift in emphasis from traditional technical skills to interpersonal business skills. Professional staff in the libraries needs to be trained in their new role as facilitators, consultants, online searchers, gatekeeper's interpreters, navigators, communicators, information managers, researchers and preservers of knowledge. Staff must learn to play pro-active and creative role rather than reactive or passive role (Jagtar Singh, 1997).

Policy and Strategy

For achieving goals and objectives, strategies are the major courses and pattern of action. The effectiveness of library requires the alignment of organizational culture, strategy, environment and technology (Robbins, 1990).

Processes

There are innumerable small set of activities in a library that are central to what the library does: what it delivers to the customers and how change is handled. The external customer is interested only in the availability of the book and not in the process whereby a ordered book is acquired: processed and made available. Application of latest technology can eliminate the unnecessary and traditional processes. Processes can be improved through customer surveys (Brophy, 1997).

Library Leadership

- (i). Librarian has to show his commitment to quality and discipline by acting as role models. It will automatically change the mindset of other, employees and teams.
- (ii). Like King Slomon, a librarian has to have an understanding heart and an discerning mind.
- (iii). As the bureaucratic librarians cannot be effective in the changed information scenario so librarians should relish change and rather represent change to prove them leaders in this information age (Sivaraman, 1997).
- (iv). All library activities and processes must be defined, described and must match the ability of the task master.
- (v). Vision, mission, goals and values statements must be communicated to the lowest employee for their proper implementation at the bottom level.

- (vi). Librarian should play the role of enabler, facilitator, intrinsic motivator, coach, and team maker.
- (vii). Librarians should make different teams for supportive, decentralized and Librarians should make different tourise to be present anized and open decision making structure e.g., organizational team, discipline open decision making structure e.g., e.g., team for physical facilities, committee, maintenance team, shelving team, team for physical facilities, committee, maintenance team, sherring team, research and development team, library automation team, supervisory and steering committee etc.,
- (viii).Library should work as a clear cut a well defined system, There should be no barriers between different sections of the library.
- (ix). Every employee expects a word of praise from the top man. It gives vigor, energy and confidence to take on a new and little difficult task and deal with it successfully. Recognition is more important then monetary awards and can help small men to move mountains. The ability to lay down the same rules for him as for colleagues is the biggest strength of the leader.

Communication

Effective communication is fundamental for every organization, key to simplifying the bureaucracy and via media for improving human relation in librarianship. It involves avoiding library jargon through signs, symbols etc., teaching the users library skills, assuring the patron that his problems will be handled effectively. Information Technology makes communication effective and also equips the leader with MIS, decision support system, hypertext and hyper media.

Cultural Transformation

An organizational culture, giving the employee freedom to exploit their full potential, is the key to effectiveness. It requires a change in hearts and minds of the employees. Leader cannot build trust unless staff views him trustworthy.

Quality Improvement Tools

(i) Benchmarking: Librarian should study the processes, practices and services of the best and model libraries and should implement the same keeping in view the

(ii) Brainstorming: Regular staff meeting should be called for to solve problems of mutilation, pilfer aging, cleanliness, preservation, automation, indiscipline, reorganization and introduction of new services and deletion of unnecessary (iii) Control Chart: Cause and effect analysis, histogram, flowchart are some of the important tools for quality improvement in libraries.

Conclusion

Quality, the key term in TQM can be measured, managed and improved by measuring rod of customer satisfaction, user surveys, suggestions, complaints etc., Library service quality which is an antecedent of customer satisfaction is a global judgment. For successful implementation of TQM libraries are ideal places. They are service organizations dedicated to their customers, the patrons. By formulating a strategic plan, and following it with a commitment to continuous quality improvement, library managers can transform and improve their organizations. Riggs (1993) summarizes the notable principles of TQM: (1) manage by fact: make library decisions after careful analysis of data gathered with tools such as check sheets, histograms, and Pareto charts; (2) eliminate rework: library work is often labor intensive--simplify it and make sure it is done properly the first time; (3) respect people and ideas: staff are the library's most valuable resources, and they should be encouraged to point out problems without fear of management; and (4) empower people: trust library staff to act responsibly and give them the appropriate authority to make decisions that can improve the quality of work they do. Finally, remember that TQM is not a "quick fix." It needs to be implemented gradually over a two- to three-year period.

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Application of Total Quality Management in Academic Libraries: an experience at TMI library

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Abstract

Inadequate resources, changing user expectation, and the changing role of LIS professionals are some aspects that have contributed to apply tools and techniques of total quality management in libraries and information centers. Already many libraries are practicing some of the techniques of total quality management, including an emphasis on good User service, staff participation in decision making, and investigating user needs and levels of satisfaction. Now a day several brand tools of total quality management like teams, user surveys, flow charts and diagrams, and data are really effective for modern scientific library management. Through this article we want to share some related and concise particles of experiences with total quality management tools at TMI library. Also we want to discuss some barriers for implementation. In the end we can say teamwork, co-operation and motivation in general and pleasant personnel, the relevance with timeliness of library services and user-friendly online systems such as OPAC and Electronic information delivery systems in particular are playing vital role in achieving higher user satisfaction in Academic Libraries.

Keywords: Total Quality Management, Library and information, Services, TQM Tools, User satisfaction

Introduction

In a service organization like an academic library the customer satisfaction means fulfilling expectations of users. Professional librarians must find the way out what readers require and emphasize on providing it. He has to design the actual library service according to the user needs of user to be reliable and relevant of any service. Inadequate resources, unpredictable user expectation, and the challenging role of LIS professionals are some aspects that have contributed to apply tools and techniques of total quality management in libraries and information centers. As we know Library, is integral part of total education system, aimed at achieving the institutional goals.

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²V.Praveen, Librarian, Tolani Maritime Institute praveenvaidya@yahoo.com It is in this context that the study of Total Quality Management (TQM) in library It is in this context that the study of rotal quarks and integrative approach and information services becomes important. TQM takes an integrative approach and information services becomes important. An agement by fact, to delight the users for assuring quality in an organisation. Management by fact, to delight the users for assuring quality in an organisation, the users and continuous improvement are four Basic People-based Management Systems and continuous improvement are four Basic aspects of TQM

Objectives of Study

The specific objectives of the study are to,

- Understand the concepts of Total Quality Management.
- Examine the application of TQM to Library services, with particular reference to College Libraries.
- To share the experiences of applications of TQM Techniques at Tolani Maritime Institute, Library in providing quality information services.

The Concepts Total Quality Management

TOM is focused towards continuous improvement, the processes of improvement begins with knowing the current quality standards of the products and ends with continual improvement of quality and total benefit for the organization in all aspects. Management by Fact, It delights the customer. And we can call it as People-based Management. (Saroja & Sujatha, 1999)



Figure - 1 TQM Overview

The late Total Quality Management guru and renowned statistician Edward W. Deming has suggested cycle as: PLAN, DO, STUDY, and ACT. The PDSA methodology of Systematic V. methodology of Systematic Management is the part of any Total Quality Management Programme. The PDSA has various applications like daily routine management for the team, problem-solving process, continuous development, human resources development and new service development. All above are very relevant to academic library systems.

TQM in Service Sector

Total Quality Management is the key factor for the manufacturing industry and benefits have been better realized by intense customer-oriented service industry and Now it is in fast moving sectors like retail, hospitality, telecom and banking because the economy of service sector is highly depending upon the interactions of employees with customers and employees in their interactions create a high proportion of a service products. So the effectiveness of the interrelationship between the TQM techniques and human resource is more serious in relevance to the application of the TQM techniques by service organizations. Implementation of TQM in the service industry can be difficult due to the fact that quality of services cannot be defined objectively. Additionally, service industry has less control over factors like Lack of resources, Short-term goals, Internal environment, Communication, Lack of training, Skill of employees, Cost constraints, Measuring quality, External environment (Mansour & Bubsait, 2007). All these are affecting service quality very effectively. But we can overcome such harriers by using tools like effective communication, well-designed training programs and long term-focused strategies, Empowerment and Leadership, which help to achieve better service quality and customer satisfaction. Because of empowerment staffs are able to make decisions and they act on those values essential to meet customers' needs and expectations. The overall benefits of implementing TQM in services sector are remarkable though there are some problems in applying it successfully.

TQM in Education

In recent times, because of the globalization of national economies privatization efforts are being made in education sector for meeting current and expected demands for trained manpower. As result so many business industries are going to open engineering and management colleges. Peter Drucker (Mohanty & Lakhe 2002) has suggested three dimensions for challenges of any organization:

- Effective working of organization. 1.
- 2. Identify and realize its potential
- To change it into different business, which will be totally outstanding. 3.

These dimensions have to be faced by any educational organization for their excellence. In other words we can call TQM as an idea and method of constantly development in services and facilities offered for students. Therefore, the possible benefits of TQM in a college are: (Mehrotra, 2004) the continuous improvement focus is basic way of fulfilling the accountability requirements for educational

reform. TQM can help a college to provide better educational facility to its reform. TQM can help a conege to provide and improvement offers more students and Teachers. Continuous growth and improvement offers more students and Teachers. Continuous growth and improvement offers more excitement to students and teachers. So TQM techniques are playing vital role in the knowledge transfer process at college.

TQM in Academic Libraries

The basic purpose of TQM is customer satisfaction through product or services. The basic purpose of 101v1 is customer output of services. The customer in the library is user/reader/student. The primary purpose of library The customer in the library is user to and other academic programs of library is to support the teaching, research and other academic programs of its parent is to support the teaching, rescarch and entry and programs of its parent organization. A library is a part of a service organization, which delivers personally to the readers (Siraj,2003). The application of TQM Techniques in academic library will be in very much profit. Only thing is that we must get it academic library will be in very mass provide positive benefits definitely will come out like Incremental changes lead to continuous improvement, to develop leadership skills interested of replaying on power within position to obtain results. Increase staff participation in decision-making, thus increasing the feeling of "ownership" of decisions and directions once charted, improves the level of training of staff, increasing skills. Also helps to break down barriers between all departments and improves communication within the organization and provides a method of improving services for users in a period and with minimum resources. (Miller & Stearns, 1994)

Steps for Application of Total Quality Management

Based on his work with Japanese managers and others, Deming outlined 14 steps that managers in any type of organization can take to implement a total quality management program. (Masters, 1997) We have to follow all steps for successfully implementation of TQM philosophy then only we can say that the use of TQM techniques in academic library services provides platform of the staff to work efficiently and effectively. Particularly for Libraries (Sirkin 1993) suggests some ways a library should use the principles of TQM to improve services. Those are like Create service brochures and information kits, Conduct a user survey, Change hours of operation, Provide a more convenient resource circulation system, Use flexibility in staff assignments, Give new staff a thorough orientation, Create interdepartmental library advisory groups, Improve the physical layout of the library, care of complaints, Develop an active outreach activities, Publicize new or changed services, Develop user and staff training materials, Target services to specific groups, Offer electronic document delivery, Follow the mission statement and Smile on face.



Figure -2 Demings' Steps of TQM appl to Library

TMI: a brief introduction

Tolani Maritime Institute is one of the largest maritime educational centers offering Marine Engineering And Nautical Technology degree programs. TMI graduates are awarded Bachelor of Science. Marine Engineering and Bachelor of Science. Nautical Technology degrees by the well established Birla Institute of Technology and Science (BITS) Pilani, a deemed university widely recognized as one of India's pre-eminent centers for technology education. TMI also conducts Distance Learning Programmes, and PG Diploma Programmes jointly with the Autonomous Department of Economics, University of Mumbai through TMI Mumbai. Director General of Shipping, Government of India, has approved all above programmes.

Application of QMS in TMI

TMI has a well-defined Quality Management System (QMS) of policies and procedures that are designed to meet the requirements of DGS, IMO and BITS. This Quality Assurance System ensures excellence in all facets of TMI's operations and provides a framework for continuous improvement. The TMI Quality Management System has been certified by the Indian Register Quality Systems (IRQS) to meet the exacting requirements of ISO 9001:2008, another global standard. By applying this system institute is gaining benefits like greater transparency for students, recruiting companies, and the Governing and Academic Council in matters concerning the functioning of the institute ISO 9001:2008 also incorporates continuous performance evaluation of various aspects of the functioning of the institute by using statistical techniques. The feedback system is playing important role towards continuous improvement in the institute.

Library as an Audit Component

TMI Library is part of organization and funded, managed, controlled by TMI management itself. Audit system is an integral part of any QMS systems and external and internal audit will be done twice in year. The library has to follow all required and instructed aspects of the quality manual designed by the institute.

- Library has services like circulation of books, reference and information services, current awareness services. Auditors consider timeliness and relevance of the defined services as evaluation criteria and suggestions from them if at all for the betterment of library services.
- Library arranges book exhibitions by the vendors at library itself and all library users are involved in selecting books for collection development. Auditors focus on duplication of books, number of copies of particular title, weeding out policy and collection arrangement. Approved vendors are there for supplying books and Auditors are checking validity of approval, Discount given and Accession of books in the library.
- Auditors also check feedbacks which library has to get twice in year from its users. They also check overall performance of all library activities.

TQM Tools in Day-to-Day Activities of Library

We, at TMI using some techniques and tools of TQM for effective work effectiveness of library services following are some of them:

- For problem of Crowd management, maintaining silence and rush we are using brainstorming technique, which is a method of looking for problem solution by a group of people.
- As part of TMI, We are following all instructions, guidelines and standards of Quality Management System (ISO 9001) which is set of standards for Quality Management system for any organization by International Organization for Standardization (ISO).
- Checklist contains items that are important or relevant to a specific issue or situation. At TMI Library you will find out such checklists for CAS of

journals, Data entry formulas work instruction of for each staff. All these are very helpful for a new person joining with us.

- Discussion Forum is the common platform for every staff member for expressing his views and ideas and communication and also recording of communicated decisions. It is also used for staff professional development.
- Performance evaluation technique we are using at our library by collecting feedback from our users. It is used for evaluation of staff performance, service performance, collection of library and evaluations criteria are relevance and timeliness of services, relevance of resources, improvement of collection, atmosphere of library and overall performance of working system.
- Statistical process control is a part of our quality control and we use it to evaluate our collection acquisition of books, calculate daily, weekly transactions to identify passive users of library. All these help us to frame and develop new services and policies of library.
- Graphs like, line charts, bar charts and pie charts are used for data presentation to get sanction from the management. We identify total number of used books, highly used books and not at all used books and percentage of it.
- > We use some management techniques; tools also like affinity diagram to identify the problem of less used books. The library staff searches out possible reasons behind it and also the solution over it. We exhibit these books at the entrance of the library for awareness of new user.
- ➤ Why-Why diagram is very effective tool for find out root cause of the problem. We in our library use this to find out root cause of the problem. Problems regarding circulation counter, crowd management and tracking new books purchasing, we get helpful results from this technique. By following this technique it allows us to manage in favour of quality management. We put out users at center and then develop our services. After getting feedback twice in a year we evaluate ourselves continuously and improve our quality of services. We work as a team and review our performance.

Evaluation of Library Services in Light of TQM Techniques

Though we get good results by application of these techniques still there are some lacuna on which we have to stress more and find out the root causes. Firstly we should understand the application of techniques correctly and then use it for effective results. But we fail in some cases to get correct results such as, to maintain silence in the library, to motivate users to study and to improve book circulation. As Library follows open access system, 'misplaced books' is a continuous problem. Users are motivated to handle them properly and leave them on the table to stack them back to racks. Without actual statistics no body will have faith on research statements so here are Without actual statistics no body will have failed on vector will be under some examples. Regarding Collection development years wise total number of some examples. Regarding Collection development your intervention for total number of books are given in 2005 – 8172, 2006 – 9363, 2007 – 10460, 2008 – 11660 and in

In performance evaluation of Library for last five years is like this in 2005 - 90%, 2006 – 91%, 2007 – 92%, 2008 – 93%, and 2009 – 94%

And lastly for Book circulation in year we have considered total transactions for And lastly for Book circulation in year we have 20,547, 2007-21,505, 2008 - 20,602 the same. In 2005 number was 22,289, 2006 -20,547, 2007-21,505, 2008 - 20,602 and in 2009, total transactions were 20,555. We can find out that in book circulation there is no growth but it is decreased so we have to increase the total number of transactions.



1. Collection Development Growth

2. Performance Evaluation of Library



3. Book Circulation Statistics



Figure - 5 - Yearwise total number of books circulated in last five years

Conclusion

The quality in library services means the user of library should get information in time and the information must be relevant as per his need. If we want to achieve this we should analyze and understand the need of the users and accordingly frame our services. Now a day so many TQM tools are available. It is our duty to learn them and use effectively with IT applications. After all, these aspects vary person to person but we should work positively and work effectively to achieve quality targets as LIS professionals.

We tried our best to share our ideas and experience, but still more things are required to make efficient use of TQM tools because still there is a scope for improvement. By adopting TQM technique TMI library has got tremendous response from users. We hope that all the LIS professionals may think positively to implement TQM Techniques in their academic library.

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Total Quality Management (TQM) and University of Jaffna Library: an approach to the acquisition process

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Abstract

Most of the organizations are becoming product and service oriented and it is obvious that their target is to provide products and services to their users on commercial basis. Total Quality Management (TQM), provides the tools and the direction to improve quality of products and services. In this context, University Libraries has always been committed to provide a high quality of services to its users. It is believed that this can be achieved by implementing TQM tools and measures in the University Libraries.

The paper points out the evolution, and stages of implementation of TQM in University Libraries. It discusses the experiences of Jaffna University library service while applying TQM to its acquisition process.

Keywords: Library Quality Management, TQM, Acquisition Process

Introduction

Most of the organizations are becoming product and service oriented and they expect to provide quality products and services to their clients. Total Quality Management (TQM), provides the tools and the direction to improve quality. Libraries have always been committed to provide a high quality of services to its users. In the past, consuming more resources, buying more books, and moving to large premises are considered as improving quality. But that approach is not valid today. One of the good solutions to improve quality is to provide right information to a right user at right time. This requires a through change in the approach – an approach based on user requirements and user satisfaction. It is believed that this can be achieved by implementing TQM. Thus, TQM approach is slowly getting popular in today's libraries.

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Definitions

Ouality

In the context of Information Systems, Quality pertains to: Performance of the library system (Accuracy, Adequacy, and Timeliness

- of services)
- Quantity of the Document Collection
- Quality of Information Products judged in terms of defined norms or criteria
- User satisfaction in terms of value for money spent (cost-benefit) for service and value for information content (cost-effectiveness) •
- Number of Users per working hours •

Therefore, the Quality Management Strategies should integrate these various approaches for achieving improved Quality Information Services.

TQM

According to British Standard BS 7850, TQM is defined as, "Management philosophy and company practices that aim to harness the human and material resources of an organization in the most effective way to achieve the objectives of the organization" [7, 1999].

Capezio & Morehouse defines TQM as follows: "TQM refers to a management process and set of disciplines that are coordinated to ensure that the organization consistently meets and exceeds user requirements. TQM engages all divisions, departments and levels of the organization. Top management organizes all of its strategy and operations around user needs and develops a culture with high employee participation. TQM companies are focused on the systematic management of data of all processes and practices to eliminate waste and pursue continuous improvement" [7, 1999].

In general, total quality management can be assembled meaningfully as follows:

Quality - is to satisfy user's requirement persistently

Total Quality - is to achieve better quality with better cost benefit and cost

Total Quality Management - is systematic management to obtain total quality

Evolution of TQM

Four stages can be identified in the evolution of TQM. They are

Quality Management started with simple Inspection-based system, where library collections were compared with the collection standard of academic library.

System of Quality Control

Quality control is based on documentation control and access freedom, control of space, arrangements and environment.

Quality Assurance

Quality About the prevention-based system to sustain the quality by repeating activities of quality controls

Total Quality Management

A clear and unambiguous vision, few interdepartmental barriers, staff training, excellent user relations, emphasis on continuous improvement, and quality of the library as a whole are typical in a TQM environment.

Salient Feature of a TQM Library

A Total Quality Management Library has distinguishable features from ordinary Library. The following table gives the actual different of features among them.

	Ordinary Library	TQM Library
1.	Driven by Library	Driven by Users
2.	Driven by Opining	Driven by Feed back and data
3.	Tolerance of waste resources	Elimination of waste resources
4.	Short-term guidance	Continuous guidance
5.	Inspection	Prevention
6.	Fortressed sections and activities	Cross-function teams
7.	Blame	Problem-solving
8.	Isolation	System Thinking

Stages of TQM

The process of implementing total quality management in an organization can be developed in the following four stages:

Identification and Preparation

Identifying and collecting information about the library in the prime areas where now improvement will have most impact on the library's performance. Preparing the detailed basic work for the improvement of present needed Library activities.
Management Understanding and Commitment

To make sure that the management understands the objective and To make sure that the management and are prepared to adopt them all methodology of total quality management and are prepared to adopt them all the time.

Scheme for Improvement

Identify and resolve quality issues by involving all management and supervision in a proper scheme of training and communication.

New Initiative, New Target and Critical Examination

Start new initiative with new targets and take the complete improvement process.

Obtain information about progress and consolidate success and future improvements.

Rationale for Application of TQM in the Jaffna library

The recent user statistics of University of Jaffna Library shows that we need to revaluate and enhance the quality of service further. Our University Teachers and Students expect and enjoy only quality of service and resources with recent trends. And this is library's responsibility to have and enhance better user impact. Consequently, the Library decides to employ TQM practice in the library.

TOM and Library

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Among academic libraries in the developed countries like Duke University, the University of Minnesota, and the State University of New York at Buffalo implementing TQM, Sri Lankan University Libraries adopted TQM practices somewhat delayed. The Librarians saw themselves as keepers of knowledge rather than active agents in effective information transfer. Presently Sri Lankan libraries are pushed to a place where they have to provide quality services to its users, to sustain their existence. Sothat, University of Jaffna - library starts adopting TQM practices reviewing TQM practices and successes from other countries' University

Benefits of TQM in University Libraries

- Incremental changes lead to continuous improvement in quality of service Increase library staff participation in decision-making •
- Improves the level of training given to staff and thus increasing skills

- Breaks down barriers between library departments and improves communication within the Library
- Provide systematic mechanism to choose the library resources based on subject disciplines in the university

A Practice of TQM in Jaffna University Library

The TQM practice in the University of Jaffna Library incorporated in some routine functional areas. Primarily, the management of acquisition is likely set up with TQM.

Acquisition Module of TQM

Acquisition is one of the basic activities of a library, the process of selecting; ordering and accessing the selected materials are known as acquisition.

A total quality tool 'Flow charts' below considerably improve the quality of acquisition (purchasing).

The acquisition section staff member can easily understand the steps involved in the process with the help of this flow chart. Now one can check till which stage the process has come. And with a flow chart one can determine where the problem occurs, if any, and why it occurs.

Like this we can attempt to develop flow charts for many of the library functions and make them interrelated.

Barriers, Potential Problems, and Opponents

A number of barriers to the implementation of TQM have been encountered in all types of libraries. Some of them are listed below,

1. TQM is basically formulated for Business and industrial management which might not lend itself to the less-profit sector like libraries.

2. TQM requires a long-term investment of time over several years as processes are analyzed and an organization's culture is changed. This can cause resistance and other difficulties in these days of increasing financial and other pressures.

Problems can exist in establishing a good relationship between management controls and promoting employee empowerment.



Diagram 1: Flow Chart Plan to Invoice



Diagram 2: Flow Chart Invoice to Cataloging & Classification

Useful Enhancement of Acquisition Activities by TQM

The total quality management is the networked management practice entire library. As a starting the acquisition management is concentrated for stepping up towards TQM.

By applying TQM in the acquisition section, we found the following betterments,

- 1. Optimum level of fund utilization
- 2. Clear cut of work orders
- 3. Good selection of materials
- 4. Limited and optimal invoice and order list
- 5. Easiest and quality of book list preparation

- Cost effective book selection of annual allocation
- 6. Good Collation Practice
- 8. Less fault management and practice
- 9. Ease of work components without stress
- 10. Enable sectional staff decision-making

Further, integrating whole library management each other with proper flow chart of quality management will provide the Total Quality Management effectively in future.

Conclusion

From the review of the current status of quality improvement activities in our library, it is evident that TQM or closely related approaches are not just "flavors of the month" or "fads of the day." It asks much more time to relay on TOM.

Many other academic libraries are practicing quality in the form of Quality Assurance, Continuous Quality Improvement, User Satisfaction, etc., but TQM is well complicated and incorporating all components. Thus, if any library which does have any quality management practice has to first incorporate basis quality management practice such as Quality Assurance, Continuous Ouality Improvement, User Satisfaction, etc.

The success of TQM will vary from library to library as each library is different from the others in strategies and principles. The reality of the current library situation indicates that quality improvement is essential not only for survival but for facing major changes and growth required for today and tomorrow library.

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Benchmarking and Best Practices in Engineering College Library

More, Vivek M.¹ and Pawar, Vishnu M.²

Abstract

Information technology is accepted as boon for effective management of an organization. Principle aim of the academic libraries is to supports users in their studies and research. Implementation of best practices to provide the quality services to users to fulfilled their information needs within in stipulated time and become user oriented. Library to provide better quality services to users. The paper outlines the benchmarking definition and types along with advantages and drawbacks. Best practices decided from the comparative study and improve the performance where library fails.

Keywords: Academic libraries, best practices, benchmarking, quality policy

Introduction

Today management has become a highly specialized professional activity ensuring efficiency and a high rate of productivity. For gaining good results scientific approach is applied in the management's results. The quality of organization is always focused on customer satisfaction. Library and Information Services of Higher Education institutions play a central role in enhancing the quality of academic and research environment. The global changes particularly in the Information and Communication Technologies (ICT) have impact on the functioning of academic libraries. The dramatic progress of computer and networking technologies along with Management aspects in recent years changes in production and distribution, and use of information. The developments in ICT have changed the users' expectation from the academic libraries in different ways. The ways to build collection and services to the end users vary from the recent past practices. To meet the end-users demands effectively, the academic libraries need to identify and adopt good practices and benchmarks. Thus, preparing guidelines in a standardized way based on the best practices employed by libraries is significant which will ultimately enhance the value based services of academic libraries.

¹V.M. More, Singhad Institute of Technology & Science, India vikmmore@gmail.com

² V.M. Pawar, Singhad Institute of Technology & Science, India vishnumpawar@gmail.com The speed, growth and change with which information technology impacts the The speed, growth and perhaps quality of scholarship are causes for concern among look, feed and perhaps quality of scholarship are causes for concern among look, feed and persity educators. In this context, the educators must teach and college and university dents who are future scholers in the educators must teach and college and units students who are future scholars in such a way that they can take right decisions based on the right information. For that they must know where to right decisions the to compare retrieved information? And how to search information? How to compare retrieved information? And how to communicate it? (Konnur and Kavita, 2009).

Objectives of the Paper

With the development of IT and its application in libraries, the concept of document management changed to information management and again into the knowledge management. Library and information centers are social organization rather than profit making. To provide any type of service and successfully running the organization, quality aspect is required like TQM, SWOT and Benchmarking.

- 1. Estimating the need of users
- 2. Establishing result oriented and service provider organization.
- 3. Keeping user satisfaction as a primary objective, ensuring quality to products and services.
- 4. To cope up with future requirement of the users and preparing plan.

Benchmarking

"Learning from each other "it becomes tool for any organization benefits. We can modify their systems by adopting the best practices used by the other organization. Benchmarking is an ongoing investigation and learning experience. It ensures that the best practices are uncovered, adopted and learning experience. It ensures that the best practices are uncovered, adopted and implemented. Benchmarking is a process of industrial research that enables manager to perform company to company or organization to organization by comparative method and analyzing practices to identify the" best of best" practices available in domain and then adopt those practices and better it's performance. It is reference point to measure and when applied to work processes, yields superiors results.

Library is the organization where we used various management aspects to provide better services

This definition of Benchmarking touches following aspects

- To energize and motivate its people and organizations must
- Establish that there is a need for change
- Identity what should be changed
- Create a picture of how the organization should look after the change.

Conceptual Framework for Library of Benchmarking

Benchmarking shows where a farm excels or legs behind. This is helpful in assign the strength and weaknesses of an organization and determining its capabilities. The following are the various types of benchmarking.

Functional Benchmarking

It determines best practices in any industry. It is a comparison of functions against non competing organization with in the same sector or technological arena. Complex function such as human resources, finance, accounting and information and communication technology are unlikely comparable in terms of cost and efficiency.

(Konnur & Konnur, 2009)

Financial Benchmarking

It involves performance on financial analysis and comparing the results in an effort to access your overall competitiveness. It helps to utilise the budget for better services and designing the new services successfully with the performance and budget.

Product Benchmarking

It is the process of designing new products or upgrades this process can sometimes involve observing reverse competition products to find their products to find their strength and weakness.

Performance Benchmarking

It is to compare your performance with the other organizations to determine how good or bad your organization is. It also allows comparing products and services and assess your own. Library compares their performance with other and decides the policy to provide better services by examining the services with others.

Best Practice Benchmarking or Process Benchmarking

It is to compare the methods and practices to improve process. It is used in strategic management (Yasin & Yasin, 2002) (Baker & Huston, 1991) (Baron, 1991) in which the initiating firm observes and investigates the business processes. It is used to identify the best practices and analysis of activity to cost effectiveness and benefits, in term of services. It is used in Library and Information centre for cost effectiveness and benefit analysis in terms of services as most libraries are non profits organizations.

Strategic Benchmarking

It is compare the long term and significant decision and actions undertaken by It is compare the information environment within which libraries find other organizations activities, functions and services. It involves the themselves is charge and makes effective decisions while implementing new redesigning activities. This benchmarking study helps to take long term and significant decisions providing value added services to users.

Comparative Benchmarking

It is direct comparison of your own performance against the best of the competition and restricts the search between competitors. Comparison in terms of services for user benefits in Library organization. Comparative study of working Process helps to remove drawbacks of working pattern.

The above mentioned benchmarking types help to study the engineering college libraries. The survey helps to decide the best practices in engineering colleges for user point of view, for sake and benefits of the organization. The fully developed matrix of benchmarks is intended to provide executive staff with comparative data of past success, the information needed for improvement, and a realistic appreciation of how well the organization is moving towards its goals. In the process it should also help clarify distinctions between what are simply measurable outputs and important outcomes. Library decided to study all Engineering college libraries to compare the services and performance to achieve the best success in terms of user benefits. The best practices decided for the libraries by comparing the library functions and services they provide.

Advantage of Benchmarking

Benchmarking is an effective tool to identify ideas for change and to achieve continuous improvement in the way on an existing activity, function or process is performed.

- 1. Minimise the costs and saves time than reinventing improvements process in house.
- 2. Helps in implementation of upcoming changes and sophisticated technological improvements arising out of change across the organization
- 3. It helps to bridge the competitive gaps.
- 4. Initiates the formulation of strategic goals and objective based on external models for improving activities and process in the organization.
- 5. Stimulates an organization to overcome its inertia and think differently in the context of new approaches or models implemented elsewhere.
- 6. Facilities a learning experience

7. It helps to improvement in critical areas within the organization by adopting best practises and process.

Best Practice Benchmarking

It is to compare the methods and practices to improve process. It is used in strategic management in which the initiating firm observes and investigates the strategic management in which the initiating firm observes and investigates the business process of other firms observes and investigates the business process of other firms to identify the best practices. From the above benchmarking we derived the quality policy for our library.

Quality Policy for Engineering Library

- Provide excellent Infrastructure facilities.
- Employ highly qualifies & experienced faculty. .
- Encourage the faculty for improvement in qualifications. .
- Promote the various libraries-Institute Interactions. .
- Create Environment for Research & Development.
- To provide better services to end user satisfactions. The Management will implement a special internal quality assessment program for library development which monitors all the parameters needed for achieving the goals. Implementation of the quality policy will result in all round development of students & will mark them competent to face the challenges due to Globalization.

Best Practices in Engineering Library

Student Induction Program

The Library has been conducting orientation program to the students admitted every academic year. Students attend the program according to the time table drawn by Librarian. In this program, Library staff provides information mention

- 1. Information about Library & Library resources
- 2. Library Membership
- 3. Rules of Library
- 4. Services Provided by Library
- 5. Visit to Library
- 6. How to search OPAC & Online Resources

Computerization of Library with Standard Software

Providing betters Library Services for Users time saving & searching information. It has been decided that every library should be automated by standard Library Software, for that purpose STES Colleges select SLIM software to provide international standards catalogues.

Display of New Arrivals

To provide library current Awareness about resources, library staff has been displayed new books, journals, CD/DVDS on display boards & e-mail sends to all faculty members & students. This information also provides on library website. According to the need of the user demands the services of new arrival provided for current literature which comes to library.

Suggestion Box

Suggestion box has been kept in library for suggestion & queries from students. User It is necessary to get feedback on the regular & new services the Users. To modify, to suit to the requirement of users. For that purpose suggestion box has been kept at the entrance of the Library. Feedback Forms of the letters are open every week by the authority to evaluate them & take further decision.

Annual Best User Award

To attract more student to visit the Library & use their resources, select best user awards to one student each stream. Data is collected through Library visitors registers, Usage data collected through Library software & award is in the form of book.

Extended Hours Service

Library is kept open for 18 hours, from 8 a.m. to 12 midnight. In that 12 hours 8 am to 8 p.m. library circulation, & reading open till 12 midnight for students. Those students and staff who can't visit the library during the day-time can make use of the Library in the evening hours. Extended hours service helps the students to use library services and information they needed for preparation of examination.

Library Book Exhibition

The goal of book exhibition is made to make awareness among the students on the latest books available in the subject. On the behalf of birth anniversary of S.R. Ranganathan, Library has celebrating library week. & invites International / National publishes book exhibitions activity or technological subject concern. It

can be enlarged in future by inviting the database vendors to display digital resources in digital library section.

Information Literacy Program

"People trained in the application of information resources at their work place can be called information literate" (Paul Zurkokawaki 1974). To increasing the information Literacy among the students, library organizes various program mentions below.

- 1. Bibliographic instruction Program
- 2. Guidance provided through database venders.
- 3. Health information literacy Program
- 4. ICT Literacy Program

Carrier Guidance Service

Curries guidance at graduation level helps student to select subject of specialization, which help later on in choosing vocation. It helps to divert students towards more useful activities & recent needs of markets, & currier information bulletin organize seminars on interview skill, communication skill, resume writing etc.

Workshop Program For Library Staff

Continuous development of library staff & awareness of new tools & Services, Library has been organizing library workshop for all staff. It provides the platform to discuss ideas of services & sharing of thoughts & problems. The guidance provides by eminent personality in the field of information science. This Program Enhance the performance of Staff.

Continuous development of library staff & awareness of new tools & Services, Library has been organizing library workshop for all staff. It provides the platform to discuss ideas of services & sharing of thoughts & problems. The guidance provides by eminent personality in the field of information science. This Program Enhance the performance of Staff.

To provide Internet access facilities to the users in the library for e-mail, browsing Internet, accessing e-journals, databases, institutional repository, OPAC and accessing other libraries etc. The computer laboratory has been set up in the library as center for Information Communication Technology. A well equipped lab with 54 computers with 3mbps. Recommended electronic equipment is projection writing and instructional software helps to provide without interrupting services. (Adams, 1995)

Class Room Materials

The library has been providing the local website based on LAN for accessing the classroom notes. Power Point Presentations made by teachers regarding the curriculum on specific topic and notes on chapters. Assignments, previous years questions papers of University and internal papers along with answers prepared by the teaching staff. It helps students to know how to write answers in examinations to enhance the performance.

Open Access Journals and E-books Websites

In the age of print, open access was physically and economically impossible. But thanks to the Internet, it's an emerging reality. The concept of using term open access now has considerably high in term of sharing scholarly information freely. (Peter Suber, 2007)

The links provides to open access journals websites on the college websites. To access freely available information on the internet.

Book Bank Facility

Book bank facility provided to the SC and ST students from fund provided by social welfare department of India. For economically backward students library provided the 3 books 5 students selected from each branch. The budget arrange from the donators and various NGO organizations for books.

Maintenance of the Library Space

Library area must be clean and neat. Reading rooms, pantry, computers, lances, windows and drinking water cooler must be clean. The clean environment attracts users to come and study in healthy environment.

Conclusion

We have made an attempt in this article to give perspective of both traditional and electronic services in libraries. Quality management approaches and techniques can help libraries to improve their service quality and create user oriented culture, in the organization. Best practices benchmarking helps to create vision of the future and help to solve the problems with changing environment. Engineering libraries needs to adopt and make user more aware by giving new services. Library help corner helps the students by providing the small thing they needed for their work like stapler, whitener, gum, and punching machine. So the user gets attracted to library. Benchmarking gives the platform that is learning from each other, Not a single organization perfect in all areas, if the organizations wants to improves they have to learn from other organization and compare where they fails. This learning process leads to continuous improvement and overall development in all areas with end user satisfaction.

The best practices derived from the comparative benchmarking tool to evaluate our library services with other library and try to gives the services to the users. Best practices with interlibrary loan and photocopying services also provided to users. This gives us benefits by radical thinking and achieves our organizations goals and objectives.

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Applicability of International Indicators to Measure Performance of Medical Libraries in Sri Lanka

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Abstract

Performance measurement is a management tool, which draws an insight about the effectiveness and efficiency of a library. For years, libraries around the world have been measuring the quality of academic libraries using statistics based on their collection and use, but lately, additional methods have been developed to measure library quality. In Sri Lanka, except for surveys to measure user satisfaction, a trend to measure library performance has not been developed so far. This study tries to select suitable indicators to measure performance in Medical libraries in Sri Lanka out of the indicators developed by three international reputed bodies. Indicators developed by IFLA (International Federation of Library Associations and Federations), ALA (American Library Association) and ISO (International Standard Institution) were considered in this study. Medical libraries of University of Colombo, University of Kelaniya and University of Sri Javawardenapura were selected as the sample university libraries for this study. When common indicators were grouped together, the total list contained 66 indicators from all the three sources considered. Definition of the indicator and method of data collection were studied for each indicator for deciding their applicability to the sample libraries. Data pf services, resources and staff of each sample library were considered for the selection. It was observed that out of 66 indicators, 40 indicators could successfully be applied to measure performance of the selected three medical libraries. The other 26 indicators were not applicable due to unavailability of the service, inability of obtaining data, and non-uniformity among the three sample libraries considered. Therefore, it can be concluded from the study that majority of the indicators developed by international organizations can be successfully applied to measure performance in University medical libraries in Sri Lanka. However, care should be taken to follow uniform data collection methods in comparison studies, and in repeated evaluating of the same library. Since, the sample for this study involved only the medical libraries in the Colombo district, further studies to incorporate all the medical libraries should be carried out in order to derive a firmer conclusion.

Keywords: Performance Measurement, Performance Indicators, Benchmarking

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Introduction

Performance measurement is a management tool, which enables librarians to plan, evaluate, compare and convince (Poll and Boekhorst, 2007). According to ISO 11620, library performance is 'effectiveness of the provision of services by the library and the efficiency of the allocation and use of resources in providing services' (ISO 11620, 1998).

In terms of definition, no real distinction is made here between 'assessment', 'evaluation' and 'performance measurement'. All might be seen as methods associated with achieving quality, improvement, accountability and reflecting value. But as Powell has indicated, 'quality' is also a part of evaluation research (Powell, 2006). Evaluation methods involve measurement of input, output and outcome, or a link between input, output and outcome which is recognized in order to make a systemic improvement in library services and functions. As Lancaster (1993) has simply explained, outcomes are what the system desires to achieve, outputs are the services that are needed to produce the desired outcomes, and inputs are what should be given to the system in order to achieve these outputs. Many researches have developed models to indicate the relationship among input, output and outcome which fall into either linear (Poll, R. & Boekhorst, P., 2007, De Jager, K., 2007), cyclic (Van House, Weil and McClure 1990) or spiral (Kyrillidou, 2002) types of relationships.

Since the traditional methods of measuring the quality of an academic library using statistics based on its collection and use was no more satisfactory, additional ways to measure quality in libraries in the form of 'performance indicators' were developed by various international organizations. Performance indicators are the tools which are used to measure performance, and defined as a 'numerical, symbolic or verbal expression, derived from library statistics and data used to characterize the performance of a library' (ISO 11620, 1998).

Indicators suitable for different types of libraries have been developed by various recognized bodies in different countries. The International Federation of Library Associations and Federations (IFLA), the American Library Association (ALA), the Council of Australian University Librarians (CAUL) and UK and Irish Society of College, National and University Libraries (SCONUL) are among the prominent organizations which have developed their own indicators. Some of these indicators have been developed as early as two decades ago i.e. ALA approach (Van House, Weil and McClure 1990) and been in use in a large number of libraries of all types in many countries. It is observed that the trend to measure library performance has been initiated in the United States of America, and then recent tendency to measure library performance is observed in countries of performance studies in libraries in all the said countries, and conferences too

have emerged dedicated to the field. 'Northumbria International Conference on Performance Measurement in Libraries and Information Services' and 'Library Assessment Conference' discuss studies done exclusively in this field, and the annual international conference 'World Library and Information Congress' by IFLA carries a separate sector on Performance Measurement where a large number of studies and new developments from over the globe are discussed annually. Many research articles related to this sector too are published in many reputed journals.

However, no such development is observed in Sri Lanka so far, and except for surveys to measure user satisfaction, no other indicator to measure library performance seems to have been in practice. Increasing the awareness on suitable indicators and benchmarking indicators may help to develop the habit of measuring performance of libraries and thus, enhancing library quality by incorporating such findings in making management decisions.

This study tries to select indicators that are suitable to measure performance in Medical libraries in Sri Lanka, out of indicators developed by three reputed international bodies.

Methodology

Sample of the Study

Medical libraries of University of Colombo, University of Kelaniya and University of Sri Jayawardenapura were selected as the sample university libraries for this study.

Methodology of Indicator Selection

Indicators developed by IFLA (International Federation of Library Associations and Federations), ALA (American Library Association) and ISO (International Standard Institution) were considered for this study. Indicators developed by the Association of College and Research Libraries (ACRL) which is a subsidiary of American Library Association (ALA) were not considered in this study due to lack of detailed information. Forty indicators listed in IFLA publication Measuring quality: performance measurement in libraries (Poll, R. & Boekhorst, P. (2007) P. (2007)), 15 indicators listed in ALA publication Measuring academic library performance: a practical approach (Van House, Weil and McClure 1990) and 34 indicators listed in ISO standard 11620 Information and Documentation-Library Performance in the standard 11620 Information and Documentation-Library Performance Indicators (ISO 11620, 1998) were studied to decide their applicability applicability to the Medical libraries in Sri Lanka. Definition of each indicator and method of data collection were analyzed in order to decide their suitability to be applied in the local university medical library sector. Since the study revealed that performance indicators developed and published by these three institutions contained many common indicators, such indicators were listed and considered as

a single indicator when selecting suitable performance indicators for the study. The final list for selection contained a total of 66 indicators from all the three sources considered.

Information in regard to services offered, facilities available and staff of the three sample libraries were gathered by visiting each library. Observations, analysis of various data and statistics that have been already gathered in the libraries and discussions with librarians and library staff were the methods of information collection. Availability of the service or facility, and the possibility of data collection were the main factors considered when deciding their applicability.

Results and Discussion

It was observed that out of 66 indicators, the following 40 indicators could be successfully applied to measure performance of the selected three medical libraries.

	Source	Code	Indicator
1	IFLA	A.1	User area per capita
2	IFLA	A.2	Seats per capita
3	IFLA	A.9	Staff per capita
4	ISO	B.5.1.1	User service staff per capita
5	ISO	B.5.1.2	User service staff as a percentage of total staff
6	IFLA	B.3	Library visits per capita
	ISO	B.2.1.3	Library visits per capita
	ALA	7.	Attendance
7	ALA	11.	Service point use
8	IFLA	A.3	Opening hours compared to demand
9	IFLA	B.4	Seat occupancy rate
10	IFLA	A.6	Percentage of rejected sessions
11	ALA	15.	Online search evaluation
12	IFLA	A.4	Expenditure on information provision per capita
13	ISO	B.2.2.1	Title availability
14	IFLA	A.5	Availability of required titles
	ISO	B.2.2.2	Required titles availability
10	ALA	5.	Materials availability
15	150	B.2.2.3	Percentage of required titles in the collection
10	ISO	B.2.2.4	Required titles extended availability
1/	IFLA	A.7	Ratio of requests received to requests cent out in
10	100		interlibrary lending
10	150	B.2.7.1	Title catalogue use success rate
19	150	B.2.7.2	Subject catalogue use success rate
20	Source	Code	Indicator
20	IFLA	C.13	Shelving accuracy
	150	B.2.2.8	Shelving accuracy

Table 1: Indicators	Applicable to Measure I	Performance in	the Selected Libraries
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	IFLA	B.1	Market penetration	
21	ISO	B.2.1.1	Percentage of target population and	
	IFLA	B.2	User satisfaction	
22	ISO	B.1.1.1	User satisfaction	
	ALA	1.	General satisfaction	
- 22	IFLA	B.8	Loans per capita	
25	ISO	B.2.4.2	Loans per capita	
10.000	ALA	2.	Circulation	
24	ISO	B.2.2.5	In-library use per capita	
24	ALA	3.	In-library materials use	
25	IFLA	B.6	Collection use (turnover)	
25	ISO	B.2.4.1	Collection turnover	
	ALA	4.	Total materials use (Circulation + in-library	
26	ISO	B.2.2.6	Document use per capita	
27	ISO	B.2.4.3	Documents on loans per capita	
28	ISO	B.2.4.5	Loans per employee	
29	ISO	B.2.4.6	Percentage of stock on loan	
30	ALA	9.	Total uses (in-house + remote)	
31	IFLA	B.7	Percentage of stock not used	
	ISO	B.2.2.7	Percentage of stock not used	
32	IFLA	C.7	Acquisition speed	
	ISO	B.3.1.1	Median time of document acquisition	
33	IFLA	C.8	Media processing speed	
	ISO	B.3.1.2	Median time of document processing	
34	IFLA	C.9	Employee productivity in media processing	
35	IFLA	C.10	Lending speed	
	ISO	B.2.3.1	Median time of document retrieval from closed	
			stacks	
36	ISO	B.2.3.2	Median time of document retrieval from open access	
			areas	
37	IFLA	C.11	Interlibrary loan speed	
	ISO	B.2.5.1	Speed of inter-library lending	
38	IFLA	D.1	Percentage of acquisitions expenditure spent on the	
			electronic collection	
39	IFLA	D.4	Percentage of library means received by special	
			grants or income generation	
40	IFLA	D.5	Percentage of institutional means allocated to the	
L		- Alaka and	library	

The remaining twenty six indicators were not applicable due to various reasons which are discussed briefly here.

None of the sample libraries offered remote access to the libraries, formal reference services, loans to external users and interlibrary loan facility from other libraries for students. Reservation facility and library sutomation were not common to all the three libraries. Also facilities offered were not uniform. None of the libraries had engaged full-time staff members in providing and developing electronic services. Therefore, indicators measuring such facilities and services were regarded as unsuitable.

Also, none of the libraries organized 'events' as such, other than occasional workshops, for which, participation is limited. Training sessions organized by the library for students (i.e. orientations, lectures) and library staff are usually compulsory to attend. Therefore, high attendance to trainings cannot be taken as a success factor to the library; therefore, such indicators were disregarded too.

Extent of use of electronic resources for which access is provided through the library, though interesting, is not technically easily measurable by the library unless the web site or the original service provider keeps measurements.

Some libraries organize various events in the library itself, such as booklaunchings, lectures, book exhibitions etc. Attendance for such events and extent of the library building been used for such events are also used as indicators by IFLA and ALA. But, none of the sample libraries use their premises for such events. This indicator is more suitable for measuring performance of a main university library, but not a faculty library.

Finally, all measurements in regard to the cost effectiveness were regarded as irrelevant due to fact that unlike in most other counties academic libraries of Sri Lanka do not handle finance matters. Therefore, apart from been difficulty in obtaining total recurrent expenditure of the library as maintenance, salaries, infrastructure expenditure etc. which are handled by a different division of the university, measuring cost effectiveness seems irrelevant to a service providing entity.

Conclusions

Majority of the indicators developed by international organizations can be successfully applied to measure performance in University medical libraries in Sri Lanka.

The Medical library of the University of Colombo is the oldest in the country with a history dating back more than a century. Medical library of University of Kelaniya started to function in 1991 from the collection of the library of the North Colombo Medical College which was started in 1981. Medical library of the University of Sri Jayawardenapura started to function in 1990. Therefore, based on the observations of this study, it can be concluded that international indicators to measure library performance can be applied successfully in both well established collection methods in comparison studies, and in repeated evaluating of the same library.

Limitations of the Study

Sample of this study involved only the medical libraries in the Colombo district. Further studies to incorporate all the medical libraries should be carried out in order to derive a firmer conclusion.

order to derive a finite order indicators developed by the Association of College This study did not consider indicators developed by the Association of College and Research Libraries (ACRL). As these indicators are specifically intended to measure academic library performance, this study may have missed considering some equally important indicators.

Suggestions

Measures should be taken by a local authorized body in the Library sector to benchmark performance indicators so uniformity in performance and quality can be maintained within the libraries in the country.

A broader study involving all the universities of the country should be carried out in order to reach a firmer conclusion.

Academic libraries should be motivated to measure performance of their libraries, compare with pears, identify areas which need improvement and take managerial decisions accordingly.

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PART III – SESSION I

Advances in Library Security Technologies

Session Chair – Dr. P.V. Ramana

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RFID Technology: a system for security in university libraries

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Abstract

University Librarians have to secure the collection and its important documents as a national heritage. This paper discuses the security measures taken by the University of Pune to safe guard their collections. This library is the first library to implement RFID Technology in university libraries in India. The paper describes the equipment and components required for RFID Technology. It also provides information the lacunas /drawbacks in the system. The paper provides the information about cost factors for RFID technology. Very few software are compatible with this technology hence software details are also discussed. Due to the issues about reliability, insufficient, interfere with noise, cost and without killer application, therefore major library only experiment with RFID for holding management. The applications can lead to significant savings in staff costs, enhance service, lower book theft and provide a constant update of library collections, holding management, but also attain real-time services. The most important advantage is that libraries can use nonproprietary systems today with the availability of new generation of RFID chips with the ISO standard 15693.

Introduction

The information explosion and information technology revolution had led to the emergence of the electronic information era. We live today in an information era where in information as commodity is increasingly playing a central role in our daily life. The knowledge is ever changing in every discipline and library and information science is not an exception to understand the changing concepts in different areas of library and information science. Information explosion revolution has given rise to new mythology of the information society, where information technology 'parse' is being presented as the new savior of mankind.

In library literature a variety of context phrases such as information age global information economy, virtual library, and information super highway are appearing with considerable frequency. The stage has come when traditional type of library has to automate their services and try to disseminate the information using new technologies.

¹Prof. S.K. Patil, University of Pune, India <u>kpatil@unipune.ernet.in</u> Demands of new information environment on library and information are not only complex but also rising and libraries have also changed from static warehouses of interested documents to dynamic service centers serving all the professionals as well as non professionals. New technologies have always been of interest for the libraries both for the potential of increasing the quality of service and for improving the efficiency of operations. At present time, when libraries of all kind,(Public, research, special) are facing economic hardships the overwhelming reason for considering new technologies is the potential for cost savings in the operations and the management of the materials flows.

Jayakar Library: University of Pune

Jayakar library was established in the year 1948 to serve its users with the best services and to fulfill the requirements of the users as well as the organization since in this changing environment with the introduction of new technologies and the changing perception about the information and the information system it is seen that the libraries need to understand this change and work accordingly with the current situations and accept the current trends. As automation become a boon factor Jayakar changed itself from a traditional library to the new modern library with the introduction of different technologies available for library's automation.

From 1990 onwards Jaykar library is using LIBSYS software package for library activities. It made an infrastructure for LIBSYS software by using different networks like LAN and different points for user (OPAC) to consult the catalogue. After this it started with a new technology i.e. Barcode technology in the year 2000 and now it has gone one step ahead with the implementation of radio frequency identification (RFID).

Jayakar library is the first library in the country to implement this RFID technology with the initiative of Prof. A S Kolaskar, Vice Chancellor, University of Pune, Dr. S K Patil, Librarian Jayakar library, University of Pune, and his team executing this technology. This technology was inaugurated at the hands of honorable Mohammad Fazal, Governor of Maharashtra state and Chancellor of University of Pune on the 14th August, 2003.

Library Automation

The objective in automating any library activity was strictly limited regardless of size and complexity of the task to be mechanized. The goal of any mechanized system was essentially to change the traditional system. On the basis all major areas of library housekeeping have been successfully mechanized. The first viable system became operational roughly in 1963 and 1966. The stage has been reached when the technology and perhaps all the economic facilities exist for a change to be made in fibraries to achieve the goals and objectives. Library automation is nothing but the use of automatic and semiautomatic data processing machines to perform traditional activities such as acquisition, cataloguing, circulation. Library automation may be distinguished from related fields such as information retrieval, indexing, abstracting and automatic textual analysis.

Also the libraries, which have initiated a mechanization program, have attracted attention within the library profession and have enhanced their reputation as well as gained a higher position. The growth in the sheer mass of published information to be handled has also been offered as an explanation for the increased activity in library automation. Most of the library automation projects began in 1960's. Much of the early literature on library automation speaks about total systems and it is implied that most of the libraries should be automated library systems.

In library automation the first thing, which comes to our mind, is the technologies involved or which can be adopted to automate the libraries. As with a large research in development of new technologies some, which can be applied to libraries for easy working and for providing better services are;

- 1) Barcodes
- 2) Electromagnetic security
- 3) Radio frequency identification.

Technologies Available for Library Automation

Libraries continued to be mildly interested in such machinery for most of in the 21st century. The general-purpose computers that become widely available in 1960s changed all that and made it possible a second era of library automation systems. Most of the systems common in 1960's used punched cards. The increased availability of computers and improvements in data processing made it possible the development of library automation system. Another was the growing realization throughout society that the computers could be used effectively for numerical work.

Since 1960's with the introduction of electronic security systems many libraries have started using these systems for theft control, inventory etc and for automation of different activities.

Barcodes

The basic structure of a barcode consists of a header, a manufacturer's identification number, item number and check digit. Barcodes is a fundamental technology for library automation and flow management. In application for the circulation of books, barcodes technology has been proven to be robust, reliable and efficient.

Barcodes are noting but self-contained messages with information encoded in a series of black bars of varying breadths and white spaces between every two of them. The barcodes have found its application in different fields like supermarkets, courier companies etc. Barcodes are used basically for circulation management of document.

Barcode system is now being considered as an effective addition to support automation process. Barcode can eliminate human errors and are considered in terms of reliability of information ease, speed of operation and use. Barcode have distinct advantages over other techniques like manual data, magnetic stripes etc. In the effort to extend barcode technology to self service stations, which is one major direction for achieving better efficiency in operations the experiences have been less satisfactory.

Electromagnetic Security Systems

Barcodes cannot be the signal feed for anti-theft systems so the usual combination is to have a combination of barcodes for identification, and some electromagnetic (EM) based antitheft system. In self service stations the identification system must interact with antitheft system so that the items have the correct electromagnetic state after the circulation transaction, i.e. checked out items must be deactivated, and returned items activated.

As for the signal source for antitheft system i.e. the magnetic strip, label, or rod there is a danger of a technology trap, once the magnetic device is attached to the library item it should, ideally, not be possible to take it away. This, however, makes it difficult to switch to another electromagnetic security system if the signal source was used in alternative solution.

RFID (Radio Frequency Identification)

RFID is a method of remotely storing and retrieving data using devices called RFID tags. Take a closer look at how RFID has the potential to seamlessly invade our daily lives. The RFID applications are two main areas of applications defined broadly as proximity (short range) and vicinity (long range). Long range or vicinity applications can generally be described as track and trace applications but the technology provides additional functionality and benefits for product authentication.

RFID enables greater automation of data collection process. Most companies spend considerable effort in knowing what is in their warehouse. RFID will help them dig deeper and much more easily, tracking to the detail of even each unit. long after it has left the factory or warehouse. RFID allows all this data to be transferred securely. Companies use independent suppliers data from each of them can be carried on tags and uploaded the company's central system.

This technology has been in use in libraries for five years for book identification, for self checkout, for antitheft control, for inventory control, and for the sorting and conveying of library books and audiovisual materials. These applications can lead to significant saving in staff costs, enhance service, lower book theft and provide a constant update of media collections.

The technical features of a modern RFID system are described to provide a guideline for the evaluation of different systems. The most important issue is that non proprietary systems can be used by libraries today because to new generation of RFID chips with the ISO standard 15693 is available, with this technology, libraries are not tied to one company edited version of "Radio Frequency Identification" systems for libraries and archives.

Many libraries including Jayakar library (University of Pune) are declining to put the name of the book or even the books ISBN its International Standard book number, on the microchip implanted in it. They are using a unique bar code number instead one that would have to be hacked out of a libraries circulation database to assuage the privacy concerns of readers. For inventory management, libraries need to track individual copies of books and not the words between a given book covers.

Components of RFID System

The components required for the RFID setup areas follows;

- a) Smart labels (I-Code /Tag it/ISO 15693)
- b) RFID card (------ "------)
- c) Mid range readers/writers (ISO 15693)
- d) Gate antennas (EAS)
- e) Application software

The smart label, which is attached to the book, carried a film circuit and a very small chip. It works like a little intelligent radio by sending our radio waves, which are detected by antennae. The new advantage is that not the antennae and the label can exchange intelligent information. This makes our systems very fast and efficient for libraries. The visitor enters the library through an entrance gate, precedes either directly to the shelf to remove the books or asks for advice at the information counter or goes to the online search. He may also want to return some books. The central unit is the self-issue station. At this station books are registered as being checked out together with the visitor name, they are deactivated in their security function and a receipt is printed. The antennae will give an alarm if an item was not issued properly.

a) Smart Labels

All the books are mainly pasted with the smart labels. All the labels on books are customized with the book name, author's name, accession number of the book and other details, if necessary in their 384 bits memory .RFID smart labels are designed for lasting to lifetime of the item they identify. They have an EAS (Electronic Article Surveillance) function to detect thefts.

Figure: 1.0 - Smart Label

Copper Coil antenna

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b) **RFID** Card

This is passive label card the card draws its power from the readers Radio frequency.

c) Mid Range Reader/Writer

It comprises of a midrange reader. The equipment can easily be connected to a network or single workstation Pc or notebook and the application can begin functioning thereon. It also supports all RFID functions like anti collision feature allowing to identify multiple labels simultaneously, present in the reader field and full read/write capability. It is used at the issue/return counters at the library and also for label personalization. It is connected to a PC or computer terminal.





d) Gate Antennas

The gate antennas act a as hardware which issue a warning signal and activate the alarm system if a book or file pasted with a label is leaving the premises or department without an authorized issue/outward entry into software. Gates are easily mounted and are connected with warning light signals and also sound alarms to inform the security personnel that some mischief has taken place. These gates are used at the entry and exit points in the library.

Figure: 3.0 - Gate Antenna



e) Application Software and Hardware

The innovative software is the backbone of the RFID system. The software allows fast and high secure identification leading to authorize and authentic transactions with the different entities of the library by facilitating them with a digital smart identity.

Hardware: Hardware requirement to implement RFID Technology depends on size of the data, number of users and its transaction. Other applications etc. Recommended hardware for this technology in university library is as follows: -

Technical Specifications

LIBSYS can be installed either on an Ethernet in Client/Server environment or with serial ports connectivity in multi-user environment.

Table: 1.0 - Hardware Software requirements

	Hardware	Software
Requirement	Haldware IDM Server for LSPremia	: Windows 2000 or higher
Server	& I SDigital (2 Nos.)	version as operating system,
	DM Y Series 346 Server	and the second second second second second second second second second second second second second second second
	(Tower)	LIBSYS version 5.0
	Dust VEON 3.0 GHZ	and the second second second second second second second second second second second second second second second
	(Eutonded Memory 64T)	
	CRU 800 MHZ FSB	
	CPU 800 MILE I DE	
	2 MB L2 Cache 4 CD (2 CP*2) PC3200	
	4 GB (2 GB 2) 1 C5200	
	ECC DDR2 RAW	
	3* 140 GB Ulla 520 TOK	
	RPM SCSI HDD	
	1.44 MB FDD	
	Dual Gigabit Ethemet	
	Cards	
	DVD Writer ROM Drive	
	12/24 GB Internal Dat	
	Drive	
	IBM Director / Server	
	Guide	
	IBM ServRAID 7K Card	
Client		: Windows 2000 or higher
	3.00 Gz Intel Petoum IV	version as operating system,
	40 Gb HDD.	LIBSYS version 5.0
	512 Ram, 15" Monitor	
	Keybord Logitech Mouse	
	10/100 Ethernet Card	
	Windows XP operating	
And a start of the	Sustem	
	System	

Software for RFID in Jayakar Library

The application software used by Jayakar Library is developed by Libsys corporation, New Delhi. LIBSYS is an integrated multi-user Library Management system. For bibliographic database it follows ANSI Z-39 format. The version of LIBSYS runs on various platforms such as UNIX, NOVELL LAN, WINDOWS/DOS, WINDOWS NT etc. The new version of LIBSYS is 5.0 is having additional facilities such as web OPAC, networking of departmental

libraries etc. This is also RFID compatible. The main menu of LIBSYS contains seven modules which are as follows.

Acquisition System: deals with ordering of library material, receipts monitoring, invoice processing and accessioning. It also maintains expenditure and budget analysis by respective account head.

Cataloguing System: the facility makes available various catalogues/indexes online for instant reference. It has a powerful data entry facility such as CCF, MARC etc. This system provides facilities to generate bibliographies, current awareness services, SDI, and import/export of bibliographic data in standard exchange formats, meeting specific requirement of a library.

Circulation System: maintains up-to-date membership records and the latest status of collection meant for circulation. It performs all the functions related to circulation, providing suitable checks at every stage. It takes care of infrequent but routine functions such as bindery record management display of recent additions, and so on.

Serial System: provides control of periodical subscriptions and subsequent monitoring of the scheduled arrival of individual issue. It maintains record of budget sanctioned for serials under different categories, amount encumbered and expended, thus providing complete budgetary control. This also handles serials which may be received on gratis or exchange.

Article Indexing and Abstracting: Provides facilities to create separate article database. Apart form addition, modification and deletion of article records in the database; it has options to provide different services like SDI, documentation, bibliographies etc. from article database.

Web OPAC/OPAC: Online Public Access Catalogue provides online facility to search the bibliographic databases extensively, which also includes word based search facility using Boolean operations. The OPAC also provides the periodic list of recent additions to library collection and allows users to find the material issued out to them to put materials on reserves etc.

Networking of Departmental Libraries: Latest version of LIBSYS i.e.5.0 provides networking facility to club departmental libraries. So that it will be easier to see the database of departmental libraries by sitting in Central library, through Internet. A union catalogue of departmental libraries is also created. Each department can use this software for all kind of transactions i.e. issue and return.

How does RFID work?

The smart label, which is attached to the book, carries a film circuit and a very small chip. It works like a little intelligent radio by sending out radio waves,

which are detected by antennae. The new advantage is that both the antennae and the label can exchange intelligent information. This makes our systems very fast and efficient for libraries, especially with exit gate antennae.

Advantages and Benefits of RFID

Following are the major advantages of RFID technology.

- 1. Improved tracking of high-value items.
- 2. Reduce shrinkage errors.
- 3. Inventory visibility, accuracy and efficiency.
- 4. Improved production planning and smart recalls.
- 5. Technology standards to drive down cost.
- 6. Automated Issue/Return
- 7. Theft Prevention
- 8. Stock Verification and control
- 9. Automated Sorting Of Books on Return
- 10. Tested and Proven solution available now
- 11. No lines or greatly reduced lines at the check out counter.
- 12. Less repetitive work for personnel and increase the security function in library
- 13. Reduce materials cost and handling.
- 14. A regular inventory control and update of the databases is possible.
- 15. Automation of sorting and conveying functions and easy search for misplaced books.

As discussed above there are a lot of plus points in using RFID technology for libraries and most of the libraries in India should start using this technology, a much can be achieved with this technology.

Problems and Disadvantages of RFID Systems for Libraries

Vulnerability to compromise Removal of tags Sensor problems Privacy Costly technology Reader collision Tag collision Import of equipments from Germany -5% Training Metal interface near reader antenna -removed

Conclusion

Libraries have become a driving force in the development of RFID for the mass market. This technology was first used in other sectors of the industry, such as logistics, airline luggage automation or parcel distribution.

The leading role for libraries seems to be understandable, since libraries share their knowledge in the development of these systems and also the benefits have been greatest in the library community. It is important to know that the software

was developed in an earlier stage and is today far more refined Finally, the library market also benefits from the current development (and expectations) in other markets; the prices have dropped to a level, where the curve is more or less stable because higher production numbers.

Jayakar Library started its automation programme with Libsys as software in the year 1990. It also adopted barcode technology to make the services faster and with minimum manpower. To cope up with the technology it decided to adopt RFID technology, and successfully implemented this technology. First library has made infrastructure for this technology. I-Tek Software was used but some data transfer problem occurred and then again decided to purchase LIBSYS software. At present, with retrospective conversion of data and tagging of all books and materials is almost over.

With this background knowledge, it is obviously important to choose a technology that relies on the ISO 15693 standard and that every library must try to adapt to this new growing technology RFID i.e. radio frequency identification.

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Security Issues in an Academic Library

Rahini, S.¹

Abstract

This paper expects to give a detailed analysis of academic library security systems. Nearly 72% of the famous academic libraries face many problems in security issues. Through a survey to 1000 researchers in fifteen famous institutions who are using the general libraries at least one time per day faced the following searching problems. The main issues regarding the search of books are interchanging its location by students (61%), problems in re arranging the books(31%,) stealing of books(3%), tearing the important book pages,(4%) misplacement of books by anybody(1%) can be avoided by the following "censor retrieval card system". The circuit with simple censor board arrangement in the shelves will reduce this problem. Even though the old methods like camera controls will give more work and late information about these types of problems to the librarians, the new invention gives you a smart card system with better security system.

Keywords: Book theft, security issues

Introduction

The strength of library users helps the librarian to plan and develop the book collection, furniture requirement, seating arrangement, physical facilities, etc., The user perceptions also help to know whether the books and other reading materials are utilized properly. Thus the Librarians think of some other alternatives to attract the users and promote the utilization of the library resources and services to further their knowledge. But at the same time, the barriers coming up within the users disturb the librarians to play their vital role. One of the main problems faced by the librarians are the loss of books. Some of the important functions of libraries are check-in/ check-out of items, shelve items, prevent thefts, check inventory; in spite of performing these function, the users are facing problems in locating the books that are not available on shelves mostly due to theft of books. Thus the librarians are facing huge problems of security. A survey conducted finds that, more than 80% of the books were missing during the stock verification,5% of books were lost in 8 famous academic libraries, it is regrettable to note that in some libraries, the librarians have to pay the cost of the books, which were lost by users. In a survey, the librarian pays the cost of the books lost, 20% the management considers these cases and has written-off the books. In some places the remaining 20% loss of books cost was recovered from library staff.

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Need for the Study

Libraries are the store houses of knowledge. They play an important role in the work, education and recreation of millions of people. They provide variety of material and services. Large number of people turns to libraries to satisfy a desire for knowledge, or to obtain material for some kind of leisure activities. Many people enjoy book discussions, film programmes, lectures, story hours and variety of other activities by the libraries. The libraries rank as one of the society's most useful service institutions. In spite of this many users are feeling most uncomfortable with library sources and services. They are directly or indirectly to make complaints.

Research Problem

The digital libraries are providing lot of books, CDs, tapes etc. The main problem is to get the books properly and in time. Even though the users are well educated they are not co-operating the librarians in maintaining those academic libraries. The librarians are facing the following problems in this regard. The first and the most important problem in the library is inter changing the books location. Every library will have specific arrangement for each subject but the readers without the guidance of librarians with the help of catalogue software locate the books by themselves. But the problem is they will never replace it again in the same place. This may be due emergency situations or due to carelessness or due to laziness. Sometimes the readers think that it is the librarian's duty because according to their mentality the librarians are doing less work than others but equally getting the remuneration like other academics.

Sometimes just to keep the books in shelves they simply insert the books wherever they are standing; this problem arises mainly in the reference rooms and areas. The second problem is 'Misplacement of books and CDs', it is admirable as the library is in its general arrangement and system it is not entirely free from annoying abuses, particularly in the reserve book department. Students in the various courses are often directed to the reserve shelves for books which they cannot find upon application, at the library, and this, although the reading room catalogue shows that the books in question are at least nominally on the reserve shelves. In the past this misplacement or misappropriation of books has been attributed to students. No doubt the fault does he largely at their door, not wholly, however, as recent events have shown. Instructors as well as students are sometimes the offenders. The right of instructors to the use of reserve books is clearly prior to the right of students; but it can hardly be transformed into a license to retain them more than a few days at most. The interests of students merits consideration as well as the inserts of students merits consideration as well as the inters of instructors, and men can not be held responsible for a knowledge of books which, though nominally reserved, disappear periodically from the shelves sometimes for weeks
The third problem is about 'Damaging the books or tearing the important pages of the books'. For example, some of the books damaged at the British Library are as follows:

J. G. W's Ost-Indian – und Persianische Reisen Author: Worm, Johann Gottlieb, 1745 Historia della Persia Author: Pasta, Giovanni, 1650 From the Bodleian Library: The travels of Mirza Abu Taleb Khan . . . Abu Talib Khan, translated by Charles Stewart (London, 1810) The embassy of Sir Thomas Roe to the court of the great Mogul William Foster, (London, 1899) Notes on some early Persian lustre vases Henry Wallis, (London, 1885) from the Eastern Art Library, now part of the Sackler Library

The books which proved the histories were lost from the libraries. Similarly millions and millions worth of books were damaged in famous libraries even from small libraries. Beyond that natural calamities and disasters also cause damage to the books. But, those are inevitable and accidental.

Problem in Stock Valuation

Every year the stock valuation gives a heavy punishment to the librarians. sometimes valuable books material losses should be met either by the librarian from his own pocket or they should recommend the matter to the management for written off with high risk.

Theft of Books

Thieves are discovering the local library. The shifting makeup of library collections (with a greater investment in DVDs and CDs), combined with the opportunities for quick and anonymous resale over the Internet or in second-hand media stores, has made library theft a growing problem. A couple of examples:

• In one city, a police officer accidentally discovered hundreds of DVDs and CDs that had been stolen from a local library. This prompted the library director to launch an analysis of the collection, which found that 6 percent of the items thought to be on the shelves were missing. (Another 6 percent had been checked out but never returned.) In just one recent year, the library estimated, it lost nearly 2 percent of its collection.

• Sometimes the thefts are spread out among several local libraries, as in the Midwestern city where a woman was found with over 400 stolen cookbooks in her apartment.

• One library system held only children's videos and DVDs in its collectionitems that might seem less attractive to thieves. After a recent inventory, the director was surprised to find that over 40 percent of these children's DVDs were missing. Her first strategy for cutting theft was to put the DVDs on reserve, but this was overly demanding on staff. The next idea was to put only educational DVDs on the open shelves, on the assumption that these would be the least likely to be stolen. An inventory just four months later showed that almost 30 percent were missing.

• After an alert received from a customer, a librarian visited a number of local stores selling used discs. She found dozens of stolen library CDs and DVDs. It was a good attempt to find out the lost materials, but only a small percentage of the materials were found out of estimated 4,000 discs (valued at \$92,000) that had been lost from her library over just five years. Based on recent reports, the market for stolen DVDs includes game stores, Internet auction sites, and even corner grocery stores

Objective of the Study

- > To find a solution to avoid misplacement of books.
- > To find a solution to avoid interchanging of books...

Scope of the Study

This study helps the traditional librarians and digital academic librarians to provide better service to all the users and their stock shortage problems. This study is conducted on short-term analysis from 01.01.2010 to 31.03.2010.

Methodology

Since the universe is large the researcher selected only 1000 research scholars from various disciplines random. Through a perfectly planned reply-mailed questionnaire the primary data was collected From 1000 research scholars of famous 15 universities in south India, the name list of different researchers, [name and addresses from various disciplines] were collected from university postgraduate departments.

Sample Size

Nearly 1000 questionnaires were sent, but only 750 were responded fully. Some of the researchers sent the questionnaires late. Some researchers changed their residential address. Some of the researchers answered incomplete.

1000
750
61%
31%
3%
4%
1%

Table 1.0 -Rate of Response

Data Interpretation

From the above table it is clear that, even though 1000 questionnaires were sent only approximately 750 respondents answered the questions fully and completely. As per the data collected nearly 476 respondents opines that quite often the books were interchanged from one shelf to another or from one rack from another. That means nearly 61% of the researchers are facing this problem. The second major problem they are facing are the rearrangement of books from one floor to another floor or thrown about the reference tables etc., the data says nearly 233 i.e. 31% respondents are facing this problems.Nearly3% i.e. 23 people are only facing the problem of stealing .Because of awareness created on damaging and tearing, the percentage was reduced to only 4 % i.e. 30 people out of 750 are facing this problem. When compared to earlier studies of various researchers. due to computerized stock maintenance, and RFID issue system only 4% of the people are facing the problems. Only 1% of the people ie.8 respondents feel that the books were misplaced and wrong entries the books searches are difficult in digital and conventional libraries. All these problems prolonged their researches.

Findings

The research says that all the academic libraries are facing the problem of inter changing the books places either from one rack to another or from one department to another department shelves. Whenever the researchers are in need of urgent books it may be available in the catalogue but physically not there. The researchers are in a different field of education the librarians are not aware of the latest books available in the market. Even the management is willing to buy advanced packages, due to improper technical trainings librarians are not willing to accept or adopt those changes in the libraries. So the misplacement of books will be more and which is inevitable. Due to very wide access and area of library rooms, often stealing in one side and exit in another side is possible. And due to wide area of access the librarian is also not in a position to control the theft make the researchers happy by providing all the books which they want. Many times the librarians are not checking the returning books. The important pages, calculation pictures, contents etc are missing while returning it. So the damage of books and its important pages are causing problem to the librarian. So the researcher is unhappy about the library security service.

The researcher is often confused with arrangements in the library. The librarian is always not in a good mood to help the researchers in searching the books which will be either misplaced are interchanged.

Some of the librarians are delay in entering the old returns and new arrivals. That also makes the researchers to feel that books are misplaced or interchanged.

Some of the books were taken by the library professionals themselves for their own purpose or for their known persons purpose this will also be not in the shelves but in the catalogues. The researchers consider those books as also misplaced ones.

In spite of tight security also some thefts will occur without the knowledge of the librarians. So securities under controlled conditions with fully secured arrangements may provide satisfied service to their users. Hence the libraries are in need of still better library control security systems.

Discussion

- The libraries should be completely controlled by CCTV cameras.
- The shelves should have a electronic sensor door locking system.
- The users should be provided with the digitalized signatory punch card system.
- The books should be coded with RFID system or bar coding system as per the rack wise and subject wise.
- Each racks and shelves should be attached with small circuit boards with electronic batteries.
- All the racks should be connected with the main computer.
- Even reference retrievals should be in the smart card system.
- All the information of every time retrievals inside the library should be noted with time with the help of censor lights.
- While the out punch is made the details about the retrievals are shown in the main computer.
- The machine will be like a ATM machine. but which will be connected with a main computer control.
- As soon as the reader needs a book, he should enter his id number and password.
- The buttons in the machine will act according to the users requirement.
- Every in or out in the shelves will be noted by pressing the key IN/-OUT.

- Until the user keep the book in the rack it will be in their name and they are accountable.
- The shelves door will be set open only for 30-40 seconds. which
- The sherves door micro controllers separate chip programming we can build such
 With the help of micro controllers separate chip programming we can build such controls.
- With the help of RF reader we can check back the books whether the books belong to the particular shelves.

Solutions Proposed

All security systems are not alike. Library boards and staff should keep the following in mind as they consider the purchase of a security system

1. The library security system supplier should be in a position to supply multiproduct multi-technology provider which will satisfy the customer needs and fit in the management budget too.

2. The library should look for matched components. Suppliers with a full line of products can also offer components that have been engineered to work together. Libraries can be confident that all components of their circulation and security systems are seamlessly integrated.

3. The libraries should not allow the suppliers to test their products in libraries with its own investment. The libraries wouldn't buy a toaster from a company that didn't conduct rigorous product testing. The library should also expect certification from a third party product safety testing and certification organization. The library security system should have the kinks worked out before you buy it.

4. The classics in the collection of security system should withstand the test of time. Expect the system to last throughout the lifetime of an item, whether it's a dense treatise that is checked out twice a decade, a popular DVD, or any other book. Any claims of durability should be backed with a meaningful guarantee.

5. Some problems can be cleared up over the phone. Some can't. If the service agreement doesn't promise local or regional support, the libraries should not go for such service providers or security systems or packages.

Limitations of the Study

- The software companies should prepare software based on Enterprise Wide Information System.
- The electronic engineers should prepare better circuits to suit with the software.
- Very costly affairs, it failed or not suited for the purpose

Conclusion

This paper tells us the problem of researchers who are facing different problems while accessing it for their researches. Even the librarians are also facing these problems. The solution regarding these problems may be solved by latest software and electronic circuits. The libraries should be controlled with a help of closed circuit cameras. The new touch screen type micro control processors with the help of codified programmes according to the requirement will protect the library books of all the above-mentioned problems. An ATM machine like microprocessor controllers will facilitate the user's access more authentic and evidential, which will also solve the problems rearrangements and misplacements. Interchanging of books from one place or from one shelf to another will be restricted through RFID code readers. The settings of the particular shelf will not

[That means every rack will have a number code.]. If the shelves are protected with censor locking system, then the problem of interchangeability will be solved. Entering each time inside the library will be ensured by the smart card punch and retrieval of books from the racks will be possible through username and pass wards. Every time in and out of books will be monitored through corresponding entries in the computers automatically programmed along with the timings and items of retrievals. This stock of each user's details will be correctly shown while they are in the exit. If some books are not at all entered or returned or inserted in its place, after the usage, then it will be shown in the EXIT. [Identification is so easy]. By following all the above said system oriented security set-ups, we will avoid all the problems and also provide complete security to all the books in the library. This EWIS package will solve the security issues in academic libraries and also provide good service to the researchers who are the important compulsory users of the library facilities.

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Assuring the Security and Accuracy of Data using a MySql Driven Database in an Automated Library Environment: case study for the library of University of Ruhuna

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Abstract

After initiating the automated circulation service in the Main library of University of Ruhuna the problem of assuring the security and accuracy of data has become a major problem. These daily influxes of valuable data mainly include circulation data and library material related entities of the library. To provide a secure and accurate data service, the library need to have a good backup service. At the beginning this was managed by a schedule back-up via a routine cron deamon on a Debian (Linux) system to copy the database into several back-up media. But this result a risk of either loss or accuracy of data in the library database, since there is a time delay between backup taking times. In this paper we present the systems administration functions designed and implemented by the UoR Library by setting up a replication server which is capable of maintaining an identical copy of the original master database down to each millisecond of modification for the MySql database used by the Information System of UoR (ISURu), a derived product of Koha (University of Ruhuna, 2005). The replication server acts as a slave system which becomes a master at an event of a failure with a fully updated database which is identical to the original one. Later the system was fine-tuned by adding the service Heartbeat which is capable of switching between master and slave servers automatically in an event of a failure. The combined effects of these newly updated features provide capacity to assure the security and accuracy of data in the automated library environment of University of Ruhuna.

Key words: Data security, replication, MySql database, Koha, library automation, automated circulation

Introduction

The main library of the University of Ruhuna (UoR) has been rendering its service to the university since 1985 at which time the university was located at Wellamadama, Matara (University of Ruhuna, 2010). All the library functions were executed manually till 1992.

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In 1992, the University Grants Commission of Sri Lanka offered computers for all universities to promote library automation facilities in all Universities in Sri Lanka (Hettiarachichi, 2001). According to the annual report of the University (2005), the library has initiated work with CDS/ISIS (Computerized Documentation Service/Integrated Set of Information Systems) to manage the library related data. According to Hettiarachichi (2001) library started the OPAC (Online Public Access Catalog) in 2000. The conversion of the library software environment into the open source library management system - ISURu took place in 2005, which was completely novel and highly cost effective and economical approach that can be considered as a quantum leap in the technical development of the library functions.

The library of University of Ruhuna started automated circulation system in 2009 (University of Ruhuna, 2009) that facilitated the library requirements of nearly 10000 (University of Ruhuna, 2009) of its students and members of staff. Automating the library services will greatly benefit not only the library patrons but also the staff members of the library, who are responsible for providing different information services in particular fields (Sonker and Jayakanth, 2003). As the first step of this automation process, the Ruhuna library launched a test run of its circulation in 2008 and expanded it to a live service from 2009 onwards which compelled the library to investigate ways and means to manage a bulk volume of daily data with a super care.

Technical Background

Versatile library software which consists of a high performing database management system offers a significant support to maintain and organize a massive bulk of data with a good security in an automated library system of a University. There are various types of library management systems in the world (Hettiarachichi, 2001). With respect to the economy and above mention factors, Ruhuna University library selected an Open source library management system (koha). Koha was developed in 1999 in New Zealand by Katipo Communications Ltd with funding from the Horowhenua Library Trust (Tong, 2004). The most significant character found in the Koha Library Management System (KLMS) is that it is an open source or is providing the source code of the program (Perens, 2008) allowing modifications and even re-distribution according to requirements of the user however, under the so called GPL license (GNU general public license, internet).

According to the official website of Koha, it is the first open-source Integrated Library System (ILS) which is being used in libraries all over the world and which is built using library standards and protocols that ensure interoperability between Koha and other systems and technologies, while supporting existing workflows and tools. Koha source code is written in Perl, using a MySql database to store its data, and is accessed via an Apache web server (Weir, 2005). Since it is a fully functional library management system, it is equipped with modules for circulation, cataloging, acquisitions, serials, reserves, patron management, branch relationships, and also with support for MARC21 and UNIMARC, E-mail and/or paper based patron's overdues and other notices, Print libraries' own barcodes, web based OPAC system, report generating etc. (Koha, online; Tong, 2004). It also enables support for various operating systems such as Linux, UNIX, Windows and MacOS without any indecision. Another significant feature that provide by koha is that it uses a dual database design that utilizes the strengths of the two major industry-standard database types (text-based and relational database management system - RDBMS). This design feature ensures that Koha is scalable (capable of being easily expanded or upgraded on demand) enough to meet the transaction load of any library system irrespective of its size (koha, internet).

As well as the organization and management of library environment, security of library data and information is also a significant matter of consideration (Newby, 2002). When data security is addressed, it may be from the point of view of corporate information security management, rather than library environments (Davies, 1992). A library should be capable enough of keeping data without lost and in a way that they can be access whenever needed. According to the Newby (2002), data security includes personnel security, privacy, policy and computer security of both users and library. Since the data in an automated library environment are stored in computer based electronic equipment, they are mainly depending on electricity. Frequent failures of electricity can be a serious threat to data that stored in a library. Apart from that software bugs routinely corrupt data files, users accidently delete their whole work-stuff, hackers and disgruntled employees erase disks or even a natural disaster can destroy the entire database without a pre-warring of the danger (Nemeth, et al., 2003). According to Newby (2002), a library would include personnel security and policies when the time they taken steps for effective backups and should assure the physical integrity of computing facilities for its clients.

At the beginning, the Ruhuna university library managed a physical backup system to secure the library database. System manipulated to get backups in scheduled hours within a day through a cron demon (Welsh & Kaufman, 1995), since the Ruhuna university library supported by Debian operating system (Debianhelp online, 2010). However, it was a temporary solution for assuring the security of the data that stored in the library database. The cron daemon is a long running process that executes commands at specific dates and times (e.g. hourly, daily or weekly) (Nemeth, et al., 2003). It was a time consuming physical backing up process that copying the whole database of the Ruhuna library system. Since the library database was a MySql driven one it was easy to modify the system by using the specific backing up features that are available in MySql to obtain a more advanced service for data security.

MySql is an open-source database management system for relational databases (Ullman, 2006) and it is a diligent database management system that can handle a

large number of data. According to the manual of Global Backup & Recovery (internet), MySql offers a variety of backup strategies from which users can choose the methods that best suit with the requirements of their own. MySql replication is a very efficient and safe way to protect databases that are used for critical systems and it does not effect on the data operations (MySql replication, internet). This can use to create a warm standby server that can continue the services which are provided by the primary database server in a case of failure. Replication enables data from one MySql database server (the master) to be replicated to one or more MySql database servers (the slaves). Since the replication is where one MySql server mimics the behavior of another, at each millisecond the slave server is updating with fresh data simultaneously with fresh modifications at master database (Ullman, 2006).

Managing the Switching between these two (master and slave) servers need to be managed by the system administrator in an event of a failure and this has become a major demerit that found in a replicated system and a factor of risk when providing a continuous service for the library users. So library system of Ruhuna was needed to be updated in to an automated condition of switching to workable server in case of a system failure. The complication was solved by MySql Heartbeat. Heartbeat is a software solution for Linux (Using Heartbeat with MvSal and DRBD, Internet). It is not a data replication or synchronization solution, but a solution for monitoring servers and switching active MySql servers automatically in the event of failure. Heartbeat needs to be configured to manage the switching between two servers in such a failure. The resource configuration defines the individual services that should be brought up (or taken down) in the event of a failure (High Availability and Scalability, online). Heartbeat needs to be combined with MySql Replication or DRBD (Distributed Replicated Block Device) to provide automatic failover. DRBD is a solution supported by Linux. DRBD creates a virtual block device (which is associated with an underlying physical block device) that can be replicated from the primary server to a secondary server (High Availability and Scalability, online).

Problem Statement

Automated Library system of University of Ruhuna is holding valuable information other than the library items that placed in the library. This valuable information is the data about library materials and circulation records of users. Traditionally, the most sensitive data that libraries collect are circulation records (Newby, 2002). By necessity, these are linked to identifying information for individual patrons, who borrow books or other materials. These data must be kept in a good security to provide a continuous library service without any failure in the automated library system.

After initiated the automated circulation process the library administration of University of Ruhuna face a problem of maintaining a huge daily bulk of data with a high security. The tar command that programmed through a cron job was not diligent and efficient enough to supply a perfect security to Ruhuna library database. On the other hand, the corn job can only be updated in hours and therefore, there is a risk of maintaining updated database to its last minute.

Objectives

The objective was to find out the means to assure the accuracy and security of the data, which associate with the library system by cutting down the intervention of a middle man to maintain backups and automated switching between replicated servers in an event of a failure.

Method

This case study explains the practical and applicable approaches that were implemented by the library of University of Ruhuna to mitigate the problem of maintaining the security and accuracy of library data in an automated library environment by applying following methods and technical solutions respectively.

Managing the Data Backups by using 'CronDemon'

A cron-job was scheduled by including a tar command in to the crontab file found in Linux (Debian/Leney) operating system to get backups of the library database in specific times of a day, i.e. the tar command will copying the MySql database of KLMS at 06:00am, 12:00noon and 05:00pm on each day in to a tape cartridge and USB hard disk.

Managing the Data Backups by using Standard MySql Replication

To facilitate a high efficient backup service, the master server which running the MySql data base was replicated with another secondary master (slave) server which running with the same version of MySql server (version 5). Since this service is capable of keeping backups to its last minute of updating of the master server while the pervious cron-job manage the usual scheduling in several time slots at night. There by the cron at 12:00 noon was terminated and new cron was programmed to get -tar backups at 12:00 midnight by ensuring a physical backup of the koha database. The replication system was established according to following steps.

1. Setting the Replication Master by editing the **my.cnf** file and modifying it by adding the following options.

[MySqld] log-bin=MySql-bin server-id=1

2. Setting the Replication Slave by editing the **my.cnf** file and modifying it by adding the following options.

[MySqld] server-id=2

3. A new user account was created by granting privileges required for replication in the master server.

4. Create a snapshot of the data in the master database by using the <u>MySqldump</u> tool.

5. Import the dump file in to the slave and create the database.

6. To set up the slave to communicate with the master for replication, following statement the on the slave was executed.

CHANGE MASTER TO MASTER_HOST='master_host_name', MASTER_USER= 'replication_user_name', MASTER_PASSWORD='replication_password', MASTER_LOG_FILE= 'recorded_log_file_name', MASTER_LOG_POS=recorded_log_position;

7. Start the replication by executing following command. START SLAVE:

A schematized diagram of the MySql replication architecture is showing in figure 01.



Figure: 01. MySql replication architecture

System updated with the automated failover with MySql with Heartbeat

Previously modified MySql replication system was then combined with MySql Heartbeat to provide the continuous monitoring of servers and switching the service to an active another server automatically which is in the replicated system in an event of a failure. These systems make a fully automated security service for the Ruhuna library that alive through out the whole day long. Heartbeat was configured as figure 02 bellow and Steps that taken to establish the heartbeat are mention bellow.



Figure: 02. Heartbeat Architecture

- 1. The master and slave servers were configured by adding two Ethernet cards (eth0 and eth1).
- 2. Those servers were configured by giving same virtual and different real IP addresses.
- 3. Both master and slave servers were configured as DRBD servers with unique host names.
- 4. These two servers were connected to the network through two different network switches.
- 5. "ha.cf, haresources, authkeys" files were configured according to the configurations of heartbeat.

Results

Having ISURu as the library management software that embedded with a MySql database management system, Ruhuna library is capable to reach the objective of providing a secure data service by maintaining one identical copy and four other backup of the library database in a single day. As shown in figure 03, the replication server keeps an identical copy of the original database till its last millisecond of update. By this the previous problem of keeping an updated library database was completely solved. In the same time four physical backups of the library database are saved in four different locations in specific time daily. In the master server there is a cron job to –tar the database folder of the original database

at 06:00 am, 06:00 pm and at 12:00 midnight. These backups are programmed to store in a magnetic tape cartridge and a USB hard drive respectively in the master server. These two backups of the library database can be use to recover an accidental data lost that can happen by a mistake of the library staff. The network traffic and delay of library services were prevent by scheduling to get backups at off library hours. At the same time in the replicated slave computer the same cron job is running separately by keeping two separate backups in a magnetic tape cartridge and the hard drive of the same computer. Data lost that can be happen by a hardware failure in the master server or its associated storage devices (USB drive or magnetic tape cartridge) can be recover by using the backups or the replicated copy that available in the slave server. These security services are running daily without any involvement of a middle man and this make the library management easy and trusted data service to the users. The system is now intelligent enough to switch automatically between workable servers in an event of a failure, because the Heartbeat tool has configured to monitor the behavior of servers throughout the day. Server system is also supported with UPSs to prevent the electric failures that can happen suddenly.



Figure: 03. Overview of data security strategy of the Ruhuna library system

Conclusion and Discussion

Library system of the University of Ruhuna competent to supply a high security assurance to users on their personal, circulation and library related data with in a fully automated library environment. Finally the Ruhuna library system is maintaining five different backups of the libraries database without a human intervention on any step of the backing up process.

A Library system must ensure the security and accuracy of data (Newby, 2003) to provide an effective and efficient service to its clients. This is being a significant issue in an automated library environment rather than non – automated condition.

Automated library system in University of Ruhuna performs well by providing an unbreakable service to the library users.

In future, Ruhuna library expect to update the database system with new software like MySql Proxy and Cluster to facilitate the system with high security, accuracy, automated failover, rectifying the errors done by users when handling the database and enabling to work with any salve computer that can work as server in an failure of the master. These clustered slave servers are capable enough to upgrade the database of the master server automatically after it recovers from the failure at no time.

Acknowledgement

We are indebted to the administration of Main library and University of Ruhuna to serve enough space to conduct our experiment and all the authors who supported by providing the related literature.

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Planning and Implementation of RFID Technology in Academic Libraries

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Abstract

This paper gives brief idea about the emerging Radio Frequency Identification (RFID) technology, its importance in the library management system and its working. It also describes about the basic and optional components required for smooth working of the exercise. The aim is to consider how to extend RFID applications in an academic library keeping in view the scantiness of funds and scarcity of supporting staff. The article also illustrates a vivid picture about how RFID technology is acting as a boon for libraries thereby highlighting the key benefits of RFID like shelf charging – discharging, reliability, high speed inventorying, automated materials handling etc., Besides, it outlines various issues and possible solutions involved in the process of implementing RFID application in academic library.

Keywords: Planning and Implementation, RFID Technology, Radio Frequency Identification, Library Automation Academic Library

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Effectiveness of RFID and Electromagnetic (EM) Security Gates: an installation experience of a library

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Abstract

Book theft is one of the main problems faced by the libraries since its inception, as far back as pre-Christian era. Generally it is estimated that a library looses 3% of its collection due to theft and the loss is irrecoverable in many instances. Therefore libraries should identify the effective measures to minimise book theft and should take preventive measures to control such incidents. The present study deals with the technological issues relating to the electro magnetic security systems that are installed at many libraries around the world. The main two technologies discussed here are the RFID security gate and the Electro Magnetic (EM) systems. The EM and RFID gates are considered as frontier technologies of the library security system even though these gates seem to have some drawbacks in managing the expected operations depend on different library environments. The study explores the nature of user behaviour in carrying library material through such secured areas and its impact over the performance of the security gate sensors. The paper discusses the pros and cons of the high tech security technology with the trial cases recorded at the Open University of Sri Lanka library when the systems were under the credibility testing undergone through the technical evaluation process.

Keywords: Library security, Book theft, RFID, Electromagnetic, EM

Introduction

Security issues relating to circulation control of library materials had become a debating issue in many library and information science fora as the librarians face immense challenge in safe guarding the collections. The librarians treat this duty as one of their prime duties and are responsible for the stock value of the collection. Loss of books due to many reasons like theft, misplacements, hiding, non returning etc. in a library had been happening now and then due to various reasons which are beyond the control of the librarian.

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Still every case of book theft is a questionable issue against the librarian. Therefore library regulations pertaining to check in/ check out mechanisms in libraries are becoming more and more tightening. This paper deals with electro magnetic security systems adopted by libraries as a safe guarding measure.

Safe guarding books have a history as far back as pre-Christian era. The most ancient effort to stop the book theft was writing a letter of curse on hand written manuscripts.

Following curses are two examples found on back side of the front cover of manuscripts.

"Steal not this book, my worthy friend, For fear the gallows will be your end; Up the ladder, and down the rope, There you'll hang until you choke; Then I'll come along and say, "Where's that book you stole away?"

"He who steals this book, may he die the death may he be frizzled in a pan..." (Litterascripta, 2010)

These methods were not practically much effective even at that time. Some libraries in old era used to chain the manuscripts. However that method also did not prove effective as many such books/ manuscripts were stolen while the chains remain on its hold. Today various advance technologies were adopted by libraries to stop the book theft. Fixing security cameras, electromagnetic (EM) security gates and Radio Frequency Identification(RFID technology are top of the list, but librarians still complain about book theft of their libraries, despite the large amount of funds and efforts they invested in to install different advance security systems to safeguard the collections.

It is important however to understand preventive measures and strategies adopted for minimising the book theft. In an academic library, with average security measures adopted, it is estimated that the rate of loosing books generally is around 3% from its collection per year (Bregel, 2010). The books stolen were mostly valuable or rare books/ or books on high demand, hence even few losses, would affect libraries seriously as some losses are irrecoverable.

Objectives of the Study

Main objective of the study is to explore the advantages and disadvantages of Radio Frequency Identification (RFID) and Electromagnetic (EM) security systems in relevance to library material circulation (Issuing and returning). The study also hopes to share the knowledge and experiences with librarians those who are interested in the library security issues as there is no literature or in depth studies performed locally(Sri Lanka) regarding electronic surveillance technology.

Background Issues Identified

As a preamble to the problem it is paramount to find out, why the library books are stolen? There are several reasons brought out by various studies;

- Pressure of the academic work load of the students also a reason for the increasing book theft (Weiss, 1981).
- Boss (1995) suggest that strict policies and procedure may develop anti library behaviour within library users and that would leads to increase rebellion behaviour of users and damage library belonging and steal valuable books.
- Lincon(1984) claims that the perception of potential thieves that library is a safe place for 'good picking' and low potential of getting caught.
- The most recently published literature claims that the new development of Internet based online book auctions like E-bay.com and Amazon.com are the causes for increasing book theft in libraries; The auctions have open a gate to resell used books through online. It creates lot demand to valuable used book through out the world. The trend badly affect the library as the book lifters or thieves purposively steal books from the library for selling it through online.
- SCONUL (2003) claims that there is a fixed market and demand for the stolen books.

Some of these reasons are much applicable to technologically developed countries and has less vulnerability in Sri Lanka, especially the last two points in the above list.

In identifying the effective measures to minimise the book theft, library it self has to explore its own environment, because book theft depend up on many reasons which are specific to a particular library environment. Jayaram (1988) has shown through his study that the library collection are more vulnerable for the potential offenders in extended hours. Ungarelli(1973) argues that high loss of book could be influenced by the physical arrangement of the library; compact shelves, limited space between the aisles, study desks are far from the stack are some of those. Weiss(1995) also identified the existing economical and financial factor of the country also effect book loss of libraries.

Security Measures

Library security measures can be broadly categorised in to as physical and electronic security surveillance systems. Physical security includes inspection bags of library users, secure library windows to avoid pass through books. Regular visual inspections are few examples most libraries use to perform. In early 1960s libraries were introduced with electronic security systems; among them security camera surveillance are most effective and popular systems which still use with same demand.

With the advancement of the new technologies, libraries also get benefited by introducing new security and anti theft technologies; among those Electro magnetic (EM) anti theft gates and RFID systems are widely accepted by the libraries all round the world. As such electronic theft detection systems is a growing industry due to increasing the book theft in libraries. It was also found that the most common reaction from the librarians, to minimise the book theft in library is fixing electronic security gates (Boss, 1995).

The Technology

Electro-magnetic (EM) Anti-theft Security Gate Technology

Electro-magnetic (EM) Anti theft Security Gate Technology is a technology used by university libraries in common, and is being treated as a proven technology (Bregal, 2010).

The EM was introduced by reputed international company in 1970 (Erwina & Kern, 2004). In EM system, activation and deactivation of magnetic property of a small iron strip which placed inside the spine or inside the book is used to verify the materials passing through gate; In check out, the magnetism of the iron strip is de-activated and in check in the strip it is activated.

EM security gate automatically scans items carried by patrons and identify the status of magnetism of the strip attached to the book. If the iron strip is magnetised, theft means the book is not properly checked-out, and the security gate activates and gives warnings by alarm sound. The main advantages of the technology are the low cost, durability and reliability. The tape can be hidden in the book and hard to notice where it is paste. The system is comparatively cheap and more reliable solution to the libraries (Erwina & Kern, 2004).

Radio Frequency Identification (RFID) Technology

RFID was commercially introduced in 1960s. The RFID developed to increase the productivity and efficiency of many operations such as house keeping activities, inventory control and traffic control.

It is important to understand the basic principle behind the RFID. According Landt (2005) RFID is a term coined for short-range radio technology used to communicate mainly digital information between a stationary location and a movable object or between movable objects; so as the RFID system consists of two components; Transponder and Reader. The Reader is normally stationed in a door way which is used by the users to enter the library. The transponder is always attached to an object such as a book, CD, Video tapes etc. The transponder is a small chip with an antenna and the chip stores information relevant to the attached item. The transponder passes the data to 'Readers' (the gate sensor) when they are close to each other. The transponder does not have batteries to supply required power to the chip so the chip takes power through the antenna from the Reader and then perform the operation connected.

This very fact makes RFID suitable for libraries in productive manner. Other specific feature of a RFID is the Reader can read more than one transponder signals at the same time which makes it ideally suit to the library transactions. In average 10 inches thick book sack can be read by the reader. The signal also can be sent through non – metallic and the chip can be hidden inside the hard cover of the book. All these RFID features are treated as complementary technology for library automation. Followings are few advantages the libraries could obtain through RFID technology;

- 'self checkout and check in facilities; no lines or greatly reduced lines at the check out counter
- less repetitive work (and repetitive stress injuries) for personnel and an increase in interaction with the patrons;
- reduced material costs and handling (only one label instead of two or three);
- a regular inventory control and update of the data base is possible;
- automation of sorting and conveying
- easy search for misplaced books'

(Erwina & Kern (2004) and Rajendran & Rathinasabapathy(2007)

Practical Experiences Witnessed

A case at Open University of Sri Lanka (OUSL) -the main library

Even though this technology is highly used by large and reputed libraries of the world there are some drawbacks detected in security systems by certain libraries depending on their specific library environment.

In case of the OUSL library, due to several theft detected, the library management decided to go for the electro-magnetic security system as a corrective measure. In 2007, The Open University library installed a RFID system and subsequently an EM security gate. After the technical evaluation process performed the TEC (Technical Evaluation Committee) found both systems have serious drawbacks in one important function that unable to fulfill the minimum requirements of the OUSL library. The function that failed to perform was the 'detection of angle that the materials are carried' by the patrons, within the detection range. These two technologies are discussed below.

RFID System at OUSL

The RFID system was installed in the library and under gone technical evaluation process by the Technical Evaluation Committee (TEC) appointed by the OUSL to evaluate system for it functionality.

According to the evaluation the RFID system at OUSL proved successful in functionalities such as stock control, shelf checking, check-in, check-out, item searching etc. But during the evaluation period, library has observed that the security gate has a high probability of none detecting some of the checked out books carried by the patron in certain angles. This book carrying behaviour is identified as common to most library users as shown in Figure 01, 02 and 03.

Several test cases were done in 'off hours' of the library and verified the observation by mimicking the real users behaviour. Upon these test cases it was found that the system did not fulfill the specifications required by the OUSL library.

The weakness were informed to the supplier Company and requested to adjust the 'non detection range' of the security gate. Despite all the effort made by the technical team of the supplying company the system was not successful in detecting the angles specified the Figures 1, 2 and 3. The university therefore compelled to reject the system.



Fig: 1.0 Close to chest

Fig: 2.0 Close to waist

Fig: 3.0 Under arm

EM Security Solution at OUSL

With previous RFID system experience and the increasing number of cases of book theft, library has decide to go for low cost alternative solution security solution and Electromagnetic(EM) gate was proposed and received the approval from the university.

The gate was installed in the library same way as the RFID gate and it was found that same problem exists as observed in the RFID sensor gates.

The library has allowed a month period to fine tune and correct the system but the gate was unable to show reliability expected by the OUSL, finally the EM gate was also rejected by the same reason as RFID. After failure of the two electronic systems, library has strengthened the conventional security control of the library by employing the additional security officer guard the main entrance.

These experiences led the OUSL library to rethink relating to the library security system of the OUSL library. It is hoped these experiences would be useful for decision making in adopting security measures in other libraries.

Observations Made

Upon the observation made through the OUSL experience following facts are brought forward as concerns to be raised when deciding over security systems.

- 1. RFID tags and EM strips do not have universal standard hence the client should depend up on the particular vendor and less bargaining power available for the clients.
- 2. Libraries have to spend extra cost for RFID tag or EM strip to implement the system for circulation.
- 3. In the case of RFID, The book cover must be hard bound hence has to spend extra cost and time to make the paper backs to hard.
- 4. Annual service/ maintaining charges of the systems are costly and the library has to accept any service maintenance plan offered by the company once installed the system is to be maintained.
- 5. When the selected system shifts to another version the client has to accept it as they have no other alternative hence in developing countries with many budget constraints they have to face drastic policy related issues.
- 6. At a power failure -sudden breakdown of all vital functions of the system tend to shut down hence backup power system needs to be installed and the scenario is very common in developing countries. Libraries have to spend additional cost to secure power supply by UPS or generator.
- 7. Network failure directly affects the RFID system and shutdown of the automated counter operations too affects the security gate functionalities.
- 8. To maintain the RFID or EM systems, library need additional technical person to take care of the systems operation with care.

- 9. There is high possibility to disturb or misleading the security functionality. For instance, damage the RFID chip, remove the strip or labels, cover the chip with metal object as a coin, interchange the RFID labels etc. In such cases, additional security measures are needed to be introduced along with the security gate (may be an extra manual gate, security person). These also an extra cost for the libraries.
- 10. It is seen that the user behaviour and library environment indicate significant differences country to country. But the technologies are designed modular to the county of origin. Therefore adopting these technology models has to be localised accordingly. For instance book carrying behaviour indicating in figure 1, 2 and 3 are common to OUSL library clientele but the gate sensors could not detect the checked out materials.

Conclusion

Elimination of book theft is unachieved task to any library, the fact is strongly supported by the literature (Mansfield, 2009). Most security measures would vulnerable to purposive misleading of the systems, but the theft can be minimised. Hence installing security gate is the most common option selected by libraries since the drawbacks are not known to them.

As investigated at different environments, the effectiveness and reliability of preventing book theft by introducing the electronic security gate such as EM or RFID is a questionable issue (Boss 1995). The fact also proved again in the case witnessed at the OUSL library environment.

Comparison are made by different authors between EM & RFID technology and mention that the EM technology has higher functional reliability and is far ahead than RFID in gate security management (Brehel, 2010). But in this paper it is not attempted to do a comparison again between these two technologies. However, with library automation, with many integrated functionalities in place, RFID is the best solution. This is the reason why some large libraries install both RFID and EM gates at the entrance of the library or in some cases both technologies are embedded in one security.

There are some pros and cons of both the systems; but the weaknesses of the technologies are hidden in the trade literature. As discussed in the paper points brought forward are considerations to be made by the technologist-librarians before planning to purchasing security gates with the new technology.

Suggestions

In the financial point of view, the library is a 'Cost Centre' and justifying the annual budget is a challenge to the library management. Therefore spending on advance high cost electronic security systems a feasibility study is appropriate. Most literature regarding the EM and RFID are market oriented and target to attract possible clients and do not expose hidden facts behind the technology. The Libraries in turn have very few options to select vendors for purchasing security solution particularly for circulation control as there is a market monopoly. Therefore Proper technical evaluation of the systems should be performed by an expert panel that has competency in the area of electro magnetic applications. This is extremely essential for identifying the suitability and appropriateness of the system to address the institutional requirement.

Sharing experiences with other libraries and further research and explorative studies are needed locally to understand effectiveness of the frontier technologies as discussed above by the technologists and the librarians.

Also the behaviour of students pertaining to each and every library should be observed and surveyed by a special team, most probably the readers service librarians and should propose alternative solutions to guide the readers to make their book carrying postures automatically suitable to the angles detected by the security gates For example some libraries abroad encourage carrying specifically designed bags to carry books or guide the users through another specially designed gate to correct the book carrying angle.

Community effort is also important as individual effort to prevent the library book theft. Any library itself does not have all technical expertise, so regular sharing of knowledge and experience also very important. For example; Leading library associations such as American library association (ALA 2010) and Association of College and Research Libraries (ACRL) have guidelines to their member libraries.

Issues discussed in the paper are hoped to be an eye opener for the librarians as well as the designers of the technology. The security technologies we use are to be commended as a supportive measure to the house keeping functions performed by the librarians. The loop holes in the technology however are to be corrected and further developed by the support of the user community and will become more versatile in use. Therefore these observations should be treated as a positive study to further develop the library security technologies.

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PART IV – SESSION II

Management Issues and Library Services

Session Chair - Dr. P.V. Konnur

Librarian, University of Bangalore President, Indian Academic Library Association

The New Organization Culture: a path to professionalism & a new paradigm shift for University Libraries in Sri Lanka

Weerasooriya, W. A.¹

Abstract

The aim of this study was to develop a model to transform the existing traditional Human Resource Management (HRM) model is a more dynamic HRM set up. A dynamic HRM set up is essentially required to suite to the changing needs of socio-economic, political and technological environments of the University Libraries in Sri Lanka (ULSL) with the aim of providing an efficient and an effective library and information service.

Objectives of the study were to identify the basic HRM policies, to explore favorable HRM strategies, to develop new directions in the mindsets of the university library professionals, to formulate qualities and a norm system for the library professionals, to suggest a new organizational culture for the ULSL and to develop a model to achieve these objectives.

The method used for this study was the descriptive research. Survey technique was used in order to collect data. The population of the study was the professional staff working in ULSL. Primary data was collected circulating two structured questionnaires among the Librarians and Senior Assistant Librarians (SALs) and Assistant Librarians (ALs).

80% of Librarians and 92 % of SALs and ALs stated that well trained, qualified and dedicated library staff is the main factor for providing an efficient and effective library and information service. Among library policies staff training and development which 90% Librarians marked as very important. The other important policies are recruitment and selection marked by 80%, Motivation marked by 80%, strategic planning by 70%. New HRM strategies marked by the Librarians are the teamwork which scored 90%.

The second important strategies are the Appropriate Information Technology (AIT) and the succession planning which both score 60%.

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All other three strategies like development of competencies, job design and re-design, organizational and staff qualities and norms were received by 50%. Scoring 90% teamwork indicates that it is the welltimed HRM requirement for the university libraries. Scoring 60% for the AIT indicates that libraries should upgrade their IT applications, and the IT policy formulation. Staff training and development, recruitment and selection, strategic planning, are the policies which should be formulated in the ULSL. The new HRM strategies are the teamwork, the AIT and the succession planning. The expert power culture is to be considered as the new organizational culture which is suited for the ULSL.

Keywords: Human Resource Management, Organizational culture, Training and development, Teamwork, Competencies, Motivation

Introduction

Libraries are social organizations and mainly are service organizations. Among different types of libraries, university libraries consists of a large number of working employees in different sections.

Human Resource Management (HRM) is required for the management of these working employees with a view to provide an efficient and effective library and information service. Aim of this study was to develop a model to transform the existing traditional HRM set up to a more dynamic HRM set up. A dynamic HRM set up is essentially required to suit the changing needs of socio-economic, political and technological environments of the University Libraries in Sri Lanka (ULSL) with the aim of providing an efficient and an effective library and information service.

Human Resource Management

HRM is a concept, which has its origin in USA during 1970-1980. According to Legge (1989) HRM means "human resource policies should be integrated with strategic business planning and used to reinforce an appropriate (or change inappropriate) organizational culture, that human resources are valuable and a source of a competitive advantage, that they may be tapped most effectively by mutually consistent policies that promote commitment and while, as consequences, foster a willingness in employees to act flexibility in the interest of adaptive organizations." This definition very clearly indicates that human resource should be considered as a valuable asset and the integration of HRM policies and organizational planning is to be done according to the changing demands and requirements of the organization and its culture. Here the utility of policies and strategies are emphasized. But this definition lacks the fact that achievement of objectives of human resource is on par with organizational objectives, hence a clear definition had to be derived by the researcher. The author

formulates a definition on HRM "employing, developing and managing right personnel, at the right work, right time, at the most right manner, in order to achieve the objectives of both the organization and its human resources, considering the human resource as the most valuable asset and to deploy them in a more collaborative, teamwork, human and customer friendly, self-committed and cultured environment, (it implies the national culture or a suitable culture which is to be developed in the organization) through utilizing appropriate policies and strategies"

HRM is an exigency for the ULSL owing to the factors like, severe funding curtailment, dearth of qualified potential staff, shortage of infrastructure facilities, the impacts of new Information Communication Technologies. Situations like, social recognition and the status of library professionals, a form of bureaucracy, the influence of university administrative authorities, the government policy implications, particularly the influence of foreign donor agencies and the impact of globalization demand the organizations for applying new dimensions of HRM. The developing countries generally pay more attention to traditional personnel management; rather than apply new techniques and systems. Then the idea of how these countries apply the HRM in their organizations, more particularly in the government sector, implies a very serious issue. According to Arthur et al (1995) "little attention has been given to human resource management in developing countries" and insufficient attention has been given to Management Development (MD) by the concerned circles in Sri Lanka as indicated by Akuratiyagamage (2006).

In India, this viewpoint is strongly asserted by Iyenger (1996). In library management, specific studies related to efficiency have been done, but most are related to charging, discharging methods, developing new equipment, hence much attention has to be paid on human resource aspect as according to Lehner (1997).

These findings and ideas bring the relevancy and the applicability of understanding and validating a study related to HRM in libraries.

In management literature, organizations have been classified in different contexts. According to one classification, the organizations have been categorized into two types i.e. product-based organizations and service-based organizations. Factories, industries, companies, product firms etc. belong to product-based organizations while hospitals, schools, colleges, universities and libraries etc. belong to servicebased organizations. Modern HRM specifies that product-based organizations require the human resources more competent with technical skills while servicebased organizations needs personnel possessed with human and conceptual skills. It emphasizes the Hard and Soft view of HRM.

Hard and soft view of HRM

HRM contains two views. One is soft, while the other is hard view. Soft view of HRM contains two view of the state wiew of HRM deals with one context that managing human resources strategically and, it HRM deals with one control of the point. But hard view of HRM connotes has a philosophical and holistic view point. But hard view of HRM connotes different contexts. Hard HRM indicates an idea that observing maximum out put from employees through utilizing tight control strategies, i.e. strict rules and regulations, supervision and disciplinary actions. Soft view of HRM sees developing and utilizing human resources strategically and qualitatively. Topics i.e. considering human resource as a value added organizational asset; developing and implementing the organization's human resource strategy for achieving objectives of both organization and its human resources and using and developing a culture which is conducive for achieving organization success, belong to soft view of HRM. Therefore, present research was carried out, on the basis of qualities of soft HRM view. Five 'policy approaches' i.e. strategic planning; recruitment and selection; staff training and development; motivation; welfare. handling grievances and negotiation and six 'change management strategies' i.e. teamwork; development of competencies; job design and redesign; Appropriate Information Technology (AIT); succession planning and organizational and staff qualities and norms were systematically used. These approaches and strategies are discussed in the results and discussions section in the paper.

Objectives of the Study

To identify the basic HRM policies To explore favorable HRM strategies To formulate staff and organizational qualities and norm system for ULSL To develop new directions in the mindsets of the university library professionals To suggest a new organizational culture for the ULSL and

To develop a model to achieve these objectives.

Literature Review

Discipline of management is one of the very significant fields in library and information science education and research. A literature survey was carried out using LISA (Library and Information Science Abstracts), internet sources, books and journals. Both printed books and articles of reputed journals, in library science and management literature were thoroughly investigated.

Human Resource Management and its Applications to Libraries

Realizing the importance and relevancy of HRM for libraries in colleges and university libraries in USA, American Library Association (1968) drafted a manual for personnel management and it indicates that personnel management work must be performed in the context of achieving the goals and objectives of the libraries.

Silva (1979) points out the poor management situation of libraries in developing countries is the main obstacle for library development and it is prevailing due to the dearth of properly trained staff, low status of the profession and the lack of standardization. Neville's (1982) study found that human resource is fully responsible for providing direct library service to users and to keep a balance organizational set up and further found that complicated organizational set up limits the service delivery function.

Pugliese (1985) stresses the necessity of managing for excellence for libraries, especially the management of human resources. He further states that library's personnel programmes require the identification and forecasting of staffing needs of the organization as well as the needs of the employees in relation to their work and work environment. Pugliese's survey reveals the fact that only a very few library administrators have been trained or prepared for management, especially in HRM and he argues the need of accreditation of HRM education in USA.

According to Rooks 1989) the term and the functions of personnel officer should be changed in the context of HRM in USA university libraries. Rook specifies personnel management expects a maximum out put from labour, while HRM asserts maximum benefits for human resources through developing their skills, motivation in order to ensure an effective and efficient library service.

Thapisa (1994) advocates the work team approach which is a high motivational factor than bureaucratic management structures and through team approach new social relationships, problem solving skills, decision making skills, are also built up. He concludes that job contexts are to be drawn at aiming motivational grounds.

Oldroyd (1994) examines the role of the staff development and training manager in order to demonstrate how far the university libraries are adopting an integrated approach to all aspects of HRM and to what extent HRM is part of their strategic management processes. She compares this with the new practices of HRM taken from recent literature and the findings of published research. She further suggests that librarians should be prepared to conceive a pre-planned, proactive approach to management function and to identify the new trend towards the integration of staff development and training and HRM in university libraries in UK Lehner (1997) expresses that USA University libraries should be managed mainly based on the approaches and principles of HRM. He elaborates that many lessons and experiences could be achieved by library professionals, through using recent advanced findings of HRM. Bloss and Lanier (1997) point out those library department Heads of USA universities have allotted their work time in to ten major areas. Survey revealed that librarians spend much time on three areas like human resource administration, programme and service planning and correspondence. This specifies the relevancy and the significance of HRM in university libraries in USA.

Bahtijarevic-Siber and Poloski (1998) assert that there must be sharp relationship between technology and HRM in libraries and further argue that it leads to changes in work and careers and proclaim that organizations become 'learning organizations' and managers have to conduct new advanced management styles. They observe technological innovations and creativeness as the most important elements and the characteristics of organizational culture and the human resources are the main drivers of propounding such a culture.

Ranawella's (1999) study on staff development and training facilities available in university libraries in Sri Lanka reveals several drawbacks like lack of supportive staff, absence of a clearly defined staff development policy, non-existence of a properly designed staff appraisal system, lack of opportunities for the staff to improve themselves. She suggests that library professionals should achieve further qualifications, increase participation at conferences, workshops, meetings, increase the number of professional development programmes. More training facilities for subordinates in less privileged library systems will have to be given. Simmons-Welburn (1999) investigates the utilization of culture as a construct for achieving diversity in HRM in libraries with an increasingly diverse and multicultural workforce and he proposes a conceptual framework based on model of four "culture, gender, ethnicity, geography and profession" and suggests ways in which the diversity and multicultural aspects of the workforce can be used positively, especially in the way that teams are organized and developed. Ifidon (2000) studied on personnel management in a university library in a rural setting in Nigeria and found very significant causative elements like the lack of skills, knowledge and experience on HRM by senior library professionals including Heads of departments of the library and he identified the differences between a library environment in a rural setting with an urban and highly industrialized library setting in the country. The employee's behavior, attitude towards work, motivation, capacity to work, attendance are some of the negative forces of the rural university library which require appropriate HRM strategies. He further sees and concludes that environmental factors of the library bring such negative forces.

Olorunsoln (2000) in his survey suggests that job rotation is a requirement for personnel management and it has to be accepted as a HRM policy by the Nigerian universities. Possession of new skills, reduction of boredom and monotony of

library staff, development of new social and behavioral relationships are the proactive features of job rotation. Scannwald (2000) in his study done on the organizational culture specified that new recruits must be given a proper induction programme since they are embraced with a new culture, providing information about the organization, job, contact with other employees and departments. New recruits are able to get a clear picture about the library through a proper induction programme. Hiring a mentor for this induction programme is also stressed by Scannwald.

Soliman and Spooner (2000) discuss the integration of knowledge management programmes with HRM in order to face with challenges of IT. They express that human resource department are well positioned to ensure the success of knowledge management programmes, which are directed at capturing, using and re-using employees' knowledge. Through HRM, a culture that encourages the free flow of knowledge for meeting the organizational objectives can also be created. Lal (2001) investigates on the job satisfaction of Library Assistants in ULSL using five variables like financial benefits, organizational policies and administration, inter-employee relationships, library supervisory policy and university's administrative supervision and gives satisfying and dissatisfying factors. Satisfying factors are cordial relationships with their colleagues, insurance benefits. Dissatisfying factors are performance appraisal methods conducted by the university, present supervisory policy, and other fringe benefits like residential facilities. It is presumed that they are not very favorable with their present designation too.

Bopape's (2005) study deals with the Human Resource Development (HRD) in certain university libraries in South Africa. He mentions that changing socio and political environments in South Africa have created a most complex and challenging opportunities for library managers and most library managers have received a little or no training in HRM. He notes that organizational cultures need new dimensions since HRM concepts like affirmative actions, employee empowerment and employee equity resulted organizational changes. This study concentrates on four topics like administration, personnel management, communication, and leadership. As a methodology of research, Bopape has divided HRM activities in four functions, like human resource planning, human resource provision, human resource utilization, managing labor and employment relations. He also stresses that library managers should know how to utilize and develop their human resources with special reference to performance appraisal, staff relations, delegating responsibilities, and staff discipline and he concludes that appropriate competencies like communication, team building, managing change, leadership, and motivation have to be introduced for those library managers in South Africa. Fenner and Fenner (2005) discuss the issues and trends affecting HRM in USA libraries and identify four issues which are given below.

* Issues that affect human resources within the different, individual subfunctions of human resources,

* Issues that affect human resources across the entire Human Resources Department,

* Issues that affect human resources throughout the entire organization, caused by internal factors such as executive decisions and organizational plans,

* Issues that affect human resources throughout the entire organization, caused by external or environmental factors such as changing demographics and technology.

Kuruppu Arachchi (2006) attempts to identify types of changes applied, and the factors that influence these changes at ULSL. How the application of management strategies would affect the successful change was also examined. This study reveals some of the strategies that needed to be considered in change management like, establishment of a shared motivating vision, creating an open communication and collaborative culture, obtaining approval from administrators. commitment of the senior library management, appropriate staffing, and coaching for people involved, empowering staff to act on the vision defined and controlling after implementation. Weerasooriya and Deshpande (2006) reviewed the present situation of HRM in ULSL and explored what types of human resource management concepts and techniques, which predominantly require for managing human resources in terms of achieving the expected targets of university libraries and they expressed an appropriate HRM model is to be developed within the existing culture or culture management in university libraries and stressed to apply two approaches.

Research Methodology

Since the study is related to human resources in university libraries, the appropriate method used was the descriptive research. Survey was carried out among fourteen university libraries in Sri Lanka and only the professional category of staff was the study population. A sample was not used since it was finite. Two separate questionnaires distributed to 14 Librarians and 71 and Senior Assistant Librarians (SALs) and Assistant Librarians (ALs). Only 10 Librarians (71%), 46 SALs and ALs (65%) were responded. Altogether 85 questionnaires were delivered and 56 (66%) were responded. Analysis of data was carried out using SPSS.

Results and Discussions

HRM directly supports to provide an efficient and an effective library service
Chart 01. Direct support of HRM to provide an efficient and an effective library service-Librarians response



Out of all Librarians (70%) were strongly agreed, and (30%) were agreed for the point direct support of HRM to provide an efficient and effective library service (Chart 01). This means that HRM is a very significant element for carrying out an efficient and effective library service. The Librarians' responses to the open ended questions are also matched with the above statement. It is very clear that majority of Librarians have identified the validity of the HRM and its reliability in the Sri Lankan context.

The Best Conditions for Producing an Efficient & Effective Library Service

The best conditions	% Librarians	%SALs and ALs
1.Properly organized well equipped, well furnished library building	10	4
2.Efficient classification and cataloguing procedure and documentation work		2
3Extent Amount of the use of IT		-
4.Adequate funding	-	2
5.Well trained, qualified and dedicated library staff	80	92
6.Fullest support extended by the University authority	10	
Total	100	100

Table 01 - Provision of library- Responses of Librarian

Table 01 presents the Librarians' viewpoint that human component is the most valuable resource and for that, 80% respondents have marked as the best condition for 'well trained and qualified and dedicated library staff' while 92% of the SALs and ALs have marked for the same condition. This indicates that among all other resources and conditions the preceding factor is the human resource.

Important HRM Policies for University Libraries

	Policy Approaches (Five policies)	1 Very Important	2 Important	3 Un-decided	4 Not important	5 Not important at all
2.1	Strategic Planning	7	3	-	-	-
2.2	Recruitment and Selection	8	2	-	-	-
2.3	Staff training and Development	9	1	-	-	-
2.4	Motivation	8	2	-	-	-
2.5	Welfare, Grievance, Negotiation	4	6	-		-

Table 02. Important HRM policies for ULSL- Librarians responses

The investigation on HRM policies and the policies which directly support HRM revealed that among library policies *staff training and development* of which 90% Librarians marked is very important. The other important policies are *recruitment and selection* marked by 80%, motivation marked by 80%, *strategic planning* by 70% (Table 02).

4

Important Change Management Strategies Suitable for the ULSL

Chart 02.Important change management strategies suitable for ULSL- Librarian responses



Most Important Staff Qualities and Norms for ULSL

Chart 02 illustrates that the most important change management strategy is the teamwork which was scored 90%, and the second important strategies are the Appropriate Information Technology (AIT) and the succession planning which both score 60%. All other three strategies like development of competencies, job design and re-design, succession planning, organizational and staff qualities and norms received same preference i.e. 50%. Scoring 90% for the teamwork indicates that it is the well-timed HRM requirement for the university libraries. Scoring 60% for AIT indicates that libraries should upgrade their IT application, and the IT policy formulation

Chart 03. Most important staff qualities and norms suitable for ULSL-Librarians Reponses



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a-Energetic and quality service provider b-Innovation and creativity c-Faith and trustworthiness d-Honor and care for the user e-Good spoken languages and mannerism f-Tidiness and cleanliness g-Kaizen (Continuous improvement) h-Early to come and late to leave office i-User centered service j-Involvement and commitment to work and service k-Readiness to face any challenge l-Lifelong learners m-Service first, private work later n-Bow your head and say Ayubovan

Question was asked from the Librarians to identify the most important staff qualities and norms suitable for the professional staff of ULSL. Three staff qualities and norms were received the highest responses (90%). They are 'honour and care for the user; 'user centered service; involvement and commitment to work and service. 80% responses were received for the qualities and norms like energetic and quality service provider; faith and trustworthiness and lifelong learners. innovation and creativity; good spoken mannerism; readiness to face any challenge and service first private work later were received 70% responses (Chart 03). In this background, the concept of 'Service Attitude and Quality (SAQ)' becomes the most stable entity which is also another fundamental element in the proposed HRM model. It will have to be the fundamental goal of ULSL in time to come.

Organizational Culture

Organizational culture is the characteristics, spirit and belief system of an organization, demonstrated with examples in the norms and values that are generally concerned about how people should behave and treat each other, the nature of working relationships that should be developed and the attitudinal changes. Organizational culture is defined by Schein (1985) as "of shared beliefs, values, attitudes and expectations together with the psychological notions of the unquestioned assumptions that everyone has about the organization's ways of doing things, its traditions etc." By examining the definitions and ideas, one can understand the existing organizational culture and its status in ULSL. But it is better to investigate the values and norCs as stated previously. In identifying the organizational culture, the library managers could pursue some further strategies like teamwork, succession planning, job design, and development of competencies. And it is a drive and a way forward of transformation from existing traditional organizational culture to a more cohesive and more reciprocal commitment culture.

Changing Organizational Culture (Culture Management)

The factors influencing the changing organizational culture, according to Schein (1985) are what leaders pay most attention to, how leaders react to crises and critical incidents, role modeling, teaching and coaching by leaders, criteria for allocating rewards and determining status, criteria for selection, promotion, and termination, articulation and reinforcement of organizational structure, systems and procedure, space, building, stories, and legends about, important events and people, formal statements of philosophy and policy. The ideas of Schein denote the role and contribution of library managers (leaders) are so high as compared to all other staff of the library. So library managers (leaders) become the change agents in developing organizational culture.

Appropriate Human Resource Management Model for University Libraries in Sri Lanka

Culture models of Harrison (1972); Handy (1981); Schein (1985) Williams, Dobson and Walters (1989) confess some kind of similarities. Handy's expert power culture is one in which the aim is to bring together the right people and let them get on with it. This idea is based more on expert power than the position power or personal power. Handy believes that the culture is adaptable and teamwork is more important. Expert power is that power which accrues to an individual by virtue of the possession of special knowledge and expertise. Position power is the legitimate power which is vested on an individual by virtue of occupying a particular post or position within a formal organization. Expert power is achieved through the acquisition of knowledge, skills and competencies in a particular subject or area which is required for fulfilling the objectives of both the organization and its human resources. Establishments like schools, colleges, hospitals, universities are some of the organizations which survive on the expert power. Good schools, good hospitals or reputed universities mean that the expert personnel are serving in such institutions.

Handy (1993) observes that "in universities... the experts, the faculty, have a lot of influence. The university administrators with only position power have little influence." This definition indicates a clear meaning that service sector organizations like hospitals, colleges, universities, libraries, etc. become good organizations depending upon the expert power which owned by the experts serving in those organizations and not with the administrative persons who possess only the position power which contribute a lesser amount for making the same organizations as good organizations. University library professionals need different expertise and competencies to serve their users. If these expertise and competencies are preoccupied by the library professionals, naturally the library is accrued to the expert power culture. The qualities of this expert power culture are most suitable for developing new HRM for ULSL. Criteria and qualities of Handy's expert power culture; certain concepts related to soft-system view, those discussed were used to develop the proposed HRM model given below (Figure 01). This model was tested using the data collected in the survey and therefore, it will be very suitable for ULSL.



Figure 01. A new HRM model for the ULSL

Conclusions and Suggestions

- The application of HRM should be increased in ULSL. Library professionals should be well aware of the different functions, tasks, concepts and practices of HRM. More HRM awareness programmes should be conducted in ULSL.
- The human resource policies suitable for the ULSL are training and development, assessing performance of employees, recruitment and selection, motivating employees, communicating with employees, discipline. The other important HRM policies are induction and employee orientation, human resource planning; welfare, grievances and negotiation.
- HRM strategies identified are teamwork, Appropriate Information Technology, succession planning, development of competencies, job design and re-design, organization and staff qualities and norms. Other strategies are 'New Blood Group of Library Professionals (NBGLP), Success Fund (SF) and Concept Building and Stick to Approach (CBSA).
- The staff qualities norms suitable for the ULSL are honour and care for the user; 'user centered service; involvement and commitment to work and service, a-energetic and quality service provider,-faith and trustworthiness and

lifelong learners, innovation and creativity, good spoken mannerism, readiness to face any challenge and service first and private work later. In this background, the concept of 'Service Attitude and Quality (SAQ)' becomes the most stable entity which is also another fundamental element in the proposed HRM model. It will have to be the fundamental goal of ULSL in time to come.

• The organizational qualities and norms suitable for the ULSL are learning and dynamic organization, 'from traditional organization to committed organization, 'a best institutional image, Academic freedom, availability of physical facilities; fair treatments for employees, right order (floor arrangement, collection organization) and tidiness and cleanliness.

Values of the Proposed HRM model for ULSL

- The values of this proposed HRM model (Figure 01) for ULSL are 'Expert Power Culture (EPC), flatter structure, and more teamwork, cohesive and collaborative approach, more employee involvement in decision making, holistic approach, high morale and staff commitment, objectives of both organization and HRM are fulfilled simultaneously, and human resource is considered as a value added asset, national culture and its values are to be highly utilized, and more conducive work environment.'
- The EPC is to be applied in the culture management in ULSL.

Forum for University Library and Information Service (FOULIS)

• FOULIS is a body to be established that should be comprised of all the Librarians in ULSL for meeting, discussing, presenting ideas, drafting proposals, projects, programes and plans for onward submission to the Standing Committee on Library and Information Service (SCOLIS).

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Job Satisfaction of Library Professionals Working in Dindigul District

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Abstract

Job satisfaction and organizational climate are significant and related concepts in Libraries in ensuring better library services. Studying the factors that influence the librarians and library professionals in various information environments is essential in present day digital environment. Large scale knowledge development due to the advent of communication technologies poses greater challenges to the community of librarians in identifying, locating, organizing and disseminating the right information. This paper gives an insight into the challenges and opportunities of library personnel by analyzing the level of job satisfaction and prevailing job conditions of the library professionals working in various library environments.

Keywords: Job satisfaction, organization culture

Introduction

A significant body of literature has been created concerning job satisfaction in the filed of librarianship. The majority of the literature in library science has focused on the user: what do patrons want, how do they use it, how can librarians best provide it to them. Librarians and information professionals of all types should remember that the organizational psychology that affects all other fields applies to them, too. It is imperative to recognize that factors that impact the library employee as an individual can also impact his or her performance as a service provider as well. Job satisfaction is, then, the key to librarianship as to any other profession.

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Job Satisfaction - Definition

Job satisfaction is the mental feeling of favorableness, which an individual has about his/her job. Job satisfaction in terms of pleasure and contentment has been defined as follows "Job satisfaction is the amount of pleasure or contentment associated with a job. If you like your job intensely, you will experience high job satisfaction. If you dislike your job intensely, you will experience job satisfaction.

Objectives of the Present Study

- To find out the opinion of the respondents on professional and organizational issues
- To analyses the underlying factors on job satisfaction
- To identity the role of management in promoting the productivity of library professionals
- To arrive at suggestions for the improvement of the status of the respondents.

Determinants of Job Satisfaction

Besides the nature of job and job environment, there are individual factors and situational variables which affect job satisfaction.

Individual Factors

Individuals have certain expectations from their jobs which satisfy them.. These expectations are based on an individual's level of education, age, desires, ability to perform and other factors.

- Level of Education: Level of education will determine the degree of job satisfaction
- Age : Individuals experience different degree of satisfaction at different ages
- Nature of job
 - Occupation level: Higher level jobs lead to more satisfaction
 - Job Content: The intrinsic value of the job results in better job satisfaction

Situational Variables

- Working Conditions: Physical work environment and associated facilities determine job satisfaction
- Supervision: Employee oriented supervision provides more satisfaction than job oriented

- Equitable rewards: Rewards based on job performance offers higher satisfaction
- Opportunity for Career advancement: Opportunities promotion in the future enhances job satisfaction for
- Work group: Cohesive groups offer better satisfaction due to favorable interpersonal interactions

Scope of Study

The study is based on the situational variables having an impact on job satisfaction. The study is limited to Dindugul district only. All types of libraries like Arts and Science college libraries, Engineering College libraries, University libraries and public libraries are included in the study.

Need for the Study

Job satisfaction is one of the most important factors in any organization. By making the staff members motivated and satisfied, the organization can survive healthily. Likewise, Library is an organization where services are being provided to its clientele, readers and members. To extend innovative and effective service Librarians should be satisfied in several aspects. Hence the present topic is chosen for study.

Method of Study

Questionnaire method was used to collect the primary data. Type of sampling is Convenience and Sample Size is 50. The professionals who are working in different kinds of Libraries were included in the present study.

The responses were elicited from respondents personally. The questionnaire had three sections consisting of personal data, data about place of work and queries related to job satisfaction.

Analysis and interpretation

I WORKING CONDITIONS

1. Job safety and security

	Table: 1.0				
No.	Opinion	No.Of Respdents	% Of Respdents		
1	Strongly agree	17	34		
2	Agree	26	52		
3	No opinion	-			
4	Disagree	-	-		
5	Strongly disagree	7	14		

Most of the respondents (86%) enjoy job safety and security, resulting in better job satisfaction as they can continue to work without anxiety.

2. Adequacy of manpower

Table : 2.0				
No.	OPINION	NO.OF RESPON DENTS	% OF RESPON DENTS	
1	Strongly agree	4	8	
2	Agree	26	52	
3	No opinion	6	12	
4	Disagree	14	28	
5	Strongly disagree	-	-	

Only 60% of the respondents are satisfied with the available manpower in their libraries. There is a felt need to enhance manpower to augment job satisfaction where the manpower is not sufficient.

3. Allocation of library funds

Table: 3.0

S.N	OPINION	NO.OF RESPON DENTS	% OF RESPON DENTS
1	Strongly agree	18	36
2	Agree	22	44
3	No opinion	3	6
4	Disagree	6	12
5	Strongly disagree	1	2

It is heartening to note that most of the respondents (80%) feel that funding for It is heartening to note that most of the steps to provide adequate funding for libraries is adequate. It is necessary to take steps to provide adequate funding in all libraries for the satisfaction of library professionals.

OPINION NO.OF No. % OF RESPON RESPON DENTS DENTS Strongly agree 14 1 28 2 Agree 30 60 3 No opinion --4 Disagree 5 10 5 Strongly disagree 1 2

Table :4.0

4. Satisfaction with professional assignments

Most of the respondents (88%) are happy with the professional assignments like classification, cataloging and computerization. Steps must be taken to motivate a few to evince interest in such assignments so that overall job satisfaction may increase.

5. Library collections

No	OPDITON	, 5.0	
140.	OPINION	NO.OF RESPON	% OF RESPON
1	<u> </u>	DENTS	DENTS
	Strongly agree	12	24
4	Agree	32	64
3	No opinion	1	2
4	Disagree	3	
5 1	Strongly disagree	2	0
			4

Tables 5 0

Most of the respondents (88%) are happy with the collections in the library, which will be a stimulus for them to perform better

6. Library working hours

No.	OPINION	NO.OF RESPON DENTS	% OF RESPON DENTS
1	Strongly agree	20	40
2	Agree	25	50
3	No opinion	1	2
_ 4	Disagree	4	8
5	Strongly disagree		-

Table ;6.0

Most of the respondents (90%) are happy with the library working hours Suitable adjustments in timings must be made to include even those who are not happy with the present timings.

II SUPERVISION

1. Protection by authorities

Table: 7.0

No.	OPINION	NO.OF RESPON DENTS	% OF RESPON DENTS
1	Strongly agree	5	10
2	Agree	17	34
3	No opinion	7	14
4	Disagree	14	28
5	Strongly disagree	7	14

Only 44% of the respondents enjoy people oriented supervision. There is a strong need to move from job oriented supervision to people oriented supervision in all libraries.

Table 80

2. Cooperation from authorities

No.	OPINION	NO.OF RESPON DENTS	% OF RESPON DENTS
1	Strongly agree	20	40
2	Agree	23	46
3	No opinion	3	6
4	Disagree	4	8
5	Strongly disagree	-	-

Most of the respondents (86%) enjoy cooperation from authorities in executing their functions as library professional. This is clearly an index for high level of job satisfaction.

III EQUITABLE REWARDS

1 Adequacy of salary & other perks

No.	OPINION	NO.OF RESPON	% OF RESPON
	Strongly agree	14	28
2	Agree	21	42
3	No opinion	6	12
4	Disagree	5	10
5	Strongly disagree	4	8

Table :9.0

Only 70% of the respondents are content with the salary and other perks. This matter for serious concern, unless all the library professionals are happy about their salary, job satisfaction will be a distant dream.

2. Maternity leave facility

	Table :10.0				
No.	OPINION	NO.OF RESPON DENTS	% OF RESPON DENTS		
1	Strongly agree	20	40		
2	Agree	23	46		
3	No opinion	5	10		
4	Disagree	1	2		
5	Strongly disagree	1	2		

Most of the respondents (86%) are happy with the present maternity leave facility in their own institutions. Wherever it is not true, corrective measures must be taken.

IV OPPORTUNITIES FOR CAREER DEVELOPMENT

1. Training programmes

	Table :11.0				
No.	OPINION	NO.OF RESPON DENTS	% OF RESPON DENTS		
1	Strongly agree	2	4		
2	Agree	34	68		
3	No opinion	4	8		
4	Disagree	8	16		
5	Strongly disagree	2	4		

Most of the respondents (72%) have adequate opportunities to enhance their skillsets through training programmes. Periodical training must be ensured for all to sustain job satisfaction.

2. Library automation

No.	OPINION	NO.OF RESPONDENTS	% OF RESPONDENTS
1	Strongly agree	15	30
2	Agree	23	46
3	No opinion	1	2
4	Disagree	4	8
5	Strongly disagree	7	14

Most of the respondents (76%) advocate library automation. Steps must be taken to alleviate the fear of automation from the minds of all library professionals as automation will enhance the efficiency of functioning and will result in improved job satisfaction.

3. Chances for promotion

No.	OPINION	NO.OF RESPONDENTS	% OF RESPONDENTS
1	Strongly agree	17	34
2	Agree	16	32
3	No opinion	10	20
4	Disagree	3	6
5	Strongly disagree	4	8

Only 66% of the respondents are aware of the chances for promotion which will motivate them to work with dedication. Avenues of promotion must be available

to all library professionals and professionals must be made aware of such opportunities for better job satisfaction.

No.	OPINION	NO.OF RESPONDENTS	% OF RESPONDENTS
1	Strongly agree	3	6
2	Agree	21	42
3	No opinion	4	8
4	Disagree	5	10
5	Strongly disagree	17	34

4. ICT infrastructure

Only 48% of the respondents are happy with the ICT infrastructure. Insufficiency in this area can lead to dwindled job satisfaction as this may hinder opportunities for career development.

V WORK GROUP

1. Relationship with colleagues

Table ;15.0

No.	OPINION	NO.OF RESPON DENTS	% OF RESPON DENTS
1	Strongly agree	14	28
2	Адтее	34	68
3	No opinion	1	2
4	Disagree	-	
	Strongly disagree	1	2

Almost all the respondents enjoy good relationship with their colleagues at the institutional level indicating higher degree of job satisfaction.

2. Friendliness of users

Table: 16.0			
1	OPINION	NO.OF RESPON DENTS	% OF RESPON
1	Strongly agree	22	DENIS
2	Agree	44	44
3	No opinion	28	56
4	Disagrag	-	-
5	Strongly disco	-	
1	uisagree	-	

All the respondents enjoy a cordial relationship with the users. This is really a healthy index for job satisfaction.

1 able: 17.0			
No.	OPINION	NO.OF RESPON DENTS	% OF RESPON DENTS
1	Strongly agree	26	52
2	Agree	21	42
3	No opinion	3	6
4	Disagree	-	
5	Strongly disagree		

3. User interaction

Almost all the respondents are happy with user interaction. This can surely result in higher job satisfaction.

Summary of Major Findings

A. Factors indicative of higher job satisfaction

- Job safety & security
- Allocation of library funds
- Satisfaction with professional assignments
- Collection in the library
- Working hours
- Cooperation from authorities
- Maternity leave facility
- Relationship with colleagues
- Friendliness of users
- User interaction

B. Factors Indicative of Low Job Satisfaction

- Adequacy of manpower
- Protection by authorities
- Adequacy of salary and other perks
- Training programmes
- Library automation
- Chances for promotion
- ICT infrastructure

Steps to be Taken to Enhance Job Satisfaction

C.

- To ensure adequate manpower in all libraries
- To ensure adequate many of the libraries to meet the user needs.
- To allocate enough fundo to not the tasks like classification.
- interesting to all library professionals
- To ensure suitable working hours in all libraries To adopt people oriented strategies for supervision
- To guarantee adequate salary and other perks to all
- To extend maternity leave facility to all institutions
- To make periodical training mandatory in all libraries
- To encourage library automation through retraining and
- ٠ motivation, in all libraries
- To channalize promotion avenues
- To develop ICT infrastructure to meet the needs of the knowledge society

Conclusion

This study is based on the impact of the situational variables on job satisfaction. The variables considered are working conditions, supervision, equitable rewards. opportunity for career development and work group. Factors leading to higher job satisfaction and factors leading to lower job satisfaction are identified for each variable. Suggestions for improvement are given wherever necessary.

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New Trends in Financial Management of University Libraries and its Impact on Higher Education System

Gangurde, Lalita H.1

Abstract

In the process of globalization the pattern and trends in higher education system is changing rapidly in developing countries. Library financial management is important component in University education system. This paper deals with which are new trends in financial management of University Libraries and what are positive and negative impact on higher education system? This research paper also deals with Whether University libraries are spending sufficient amount on on its functions effectivrly? Whether University authorities are ready to spend amount within stipulated time? How University financial system is in the hands of various bodies? Is University librarians are able to work with the financial Autonomy? What are new trends in financial management in university libraries? These are issue will critical review by researcher while writing the final paper.

Key word: Financial Management, globalization, revolution, Science and Technology

Introduction

In the process of globalization the pattern and trends in higher education system is changing in very rapidly in developing countries. Library financial management is important component in University education system. Today in the age of globalization and revolution in science and technology give opportunity as well as raising problems to developing countries. The higher education system in India has grown in a remarkable way, particularly in the post-independence period, to become one of the largest systems of its kind in the world. However, the system has many issues of concern at present, like financing and management including access, equity and relevance, reorientation of programmes by laying emphasis on health consciousness, values and ethics and quality of higher education together with the assessment of institutions and their accreditation.

¹L.H. Gangurde, University of Pune, India <u>kharevijay95@hotmail.com</u> These issues are important for the country, as it is now engaged in the use of higher education as a powerful tool to build a knowledge-based information society of the 21st Century.

Recognizing the above and the basic fact that the Universities have to perform multiple roles, like creating new knowledge, acquiring new capabilities and producing an intelligent human resource pool, through challenging teaching, research and extension activities so as to balance both the need and the demand. The higher education system in India has constantly striven to build universities as places of culture and of learning open to all and, above all, reinforcing the theme of learning throughout life. Participating in and contributing to major debates concerning the direction and future of society is seen as a major task and a moral obligation as well, of the university system.

Financial Management

Financial management entails planning for the future of a person or a business enterprise to ensure a positive cash flow. It includes the administration and maintenance of financial assets. Besides, financial management covers the process of identifying and managing risks. The primary concern of financial management is the assessment rather than the techniques of financial quantification. A financial manager looks at the available data to judge the performance of enterprises. Managerial finance is an interdisciplinary approach that borrows from both managerial accounting and corporate finance. Some experts refer to financial management as the science of money management.

The primary usage of this term is in the world of financing business activities. However, financial management is important at all levels of human existence because every entity needs to look after its finances. Broadly speaking, the process of financial management takes place at two levels. At the individual level, financial management involves tailoring expenses according to the financial resources of an individual. Individuals with surplus cash or access to funding invest their money to make up for the impact of taxation and inflation. Else, they spend it on discretionary items. They need to be able to take the financial decisions that are intended to benefit them in the long run and help them achieve their financial goals. From an organizational point of view, the process of financial management is associated with financial planning and financial control.

Financial planning seeks to quantify various financial resources available and plan the size and timing of expenditures. Financial control refers to monitoring cash flow. Inflow is the amount of money coming into a particular company, while outflow is a record of the expenditure being made by the company. Managing this movement of funds in relation to the budget is essential for a business. At the corporate level, the main aim of the process of managing finances is to achieve the various goals a company sets at a given point of time. Businesses also seek to generate substantial amounts of profits, following a particular set of financial processes.

Financial managers aim to boost the levels of resources at their disposal. Besides, they control the functioning on money put in by external investors. Providing investors with sufficient amount of returns on their investments is one of the goals that every company tries to achieve. Efficient financial management ensures that this becomes possible. According to Kautz (2007), financial management is the process of managing the financial resources, including budgeting/costing, accounting and financial reporting and risk management. It is handling your financial situation in a responsible manner to achieve the desired goals. (A. Kautz, J., (2007) Good financial management requires good planning. The decisions you make regarding your finances will affect many aspects of the organization life. (Mitchell, T. (2007)

Importance of Library Finance

Information, as the saying goes, is power. The primary objective of libraries is to organize and provide access to information. This objective will never change, although the format and the methods that are used can change dramatically, providing new opportunities and challenges. Higher education, scholarship, technology and economics, which are all interrelated, play an important role in understanding the needs of libraries. Library professionals in India, particularly those serving high-tech institutions, are already subject to various challenges. The introduction of computers was a challenge to all librarians. New technology may call for organizational change in the traditional library. Librarians may have to function more like consulting information engineers than as the traditional, passive custodians of information and dispensers of documents Dr.Rangnathan's tells us about the ever-growing nature of libraries.

To support this growth, resources must be accumulated. The need for both resources and for the infrastructure to support them causes many libraries to face an additional budget crunch. Education and libraries play a significant role in bringing about qualitative improvements in human resources. Finance plays a vital role in growth and development of libraries. Human resources constitute the ultimate basis for generating wealth for nations. The development of human resources is indeed both a means as well as an end in itself; and therefore, almost all exercises pertaining to socioeconomic policy formulation, and the planning and implementation strategies thereof, focus essentially on attaining the goal of human resource development'. It is the development of human resources of a nation, not its capital or its material resources, that ultimately determine the character and pace of economic and social development which, in effect, influence the quality of life of people.

The national policy on education rightly states that higher education provides people with an opportunity to reflect on critical social, economic, cultural, moral and spiritual issues facing the humanity. It contributes to national development through dissemination of specialized knowledge and skills. It is, therefore, a crucial factor for survival Library is regarded as the heart of any education system. It is difficult to conceive how higher education system can achieve its goal of human resource development in a library. It is here that students and teachers come in contact with scholars of the past and present and drink deep the knowledge and wisdom of the society to develop their intellectual horizon Thus, higher education and libraries are inextricably linked and help society by providing the necessary manpower in different fields, open new frontiers of knowledge by research, leading to all-round national development.

As education, research and development, information and knowledge have economic value, as they have significant beating on productivity; universities spend on research and development for this purpose." Finance is the heart of any enterprise and the university library is a good example of an enterprise. If the university library is to meets its objectives, enough money must be provided regularly for procurement of materials and payment of staff salaries, as well as for buildings and other equipment" (Emojorho, Daniel (2004).

It would be stating the obvious to say that adequate funding should be considered a basic necessity for the effective development of library and information services. But when such a fundamental consideration is often ignored or is not sufficiently appreciated by the sponsors of the services then it becomes necessary to reiterate even what is obvious as a means of driving the wedge in a little further (Boadi, B.Y. and Harvard-Williams, P. 1984),. Adequate financial resources are the basic need and the backbone of every library.

The scope and the nature of library finance totally depend on adequate financial provision. University libraries acquire books and periodical (Indian/Foreign), modern furniture, equipment, employed trained and experienced staff all these required funds. The cost of all these factors will represent the grants required for the library. A good library services largely depends upon a sound financial administration. How much money does the library need to render its services? Carl M. White opines, "No great university library comes to mind which cannot point to stable financial support as a corner-stone of its success.

The reason is quite simple. High standards in work of this kind cannot possibly be achieved, when funds for maintaining a competent staff, occupied by a steady flow of work, are provided by jerky fits and starts. If the library is to rid itself of a formidable menace to normal development, the university will be obliged to join with the University will be obliged to join with the University Grants Commission in establishing library financing on a footing which increases dependence on regular maintenance funds and reduces dependence on non-recurring grants." Proper consideration of needs will identify the scale of requirement and the best source of funding to match the needs. Finance is concerned with acquiring funds and making the optimal use of these funds. University Grants Commission, U.K. has stressed the importance of finance in its report "We have had in mind throughout this report, on the one hand, that adequate provision for libraries in of central importance to the universities and indeed to the national system of higher education and to the intellectual standing of the nations of the other hand, the library costs are raising steeply, that no end to this rise can be forsseen, and nationally will always depend on the skillful use of financial resources which leg behind the demands made on them" (U.K. University Grant Committee 1967) Libraries are nonprofit organization not having their own income sources. No library can render effective service without adequate funds. Thus library services are affected when finance is limited.

As per the Dr. Ranganathan's fifth law of library science, library is a growing organism which requires continuous and adequate financial support and human resource to organize its collection and to provide better services to users for looking to its present and future needs. Library costs include

- 1. Building Costs(heating/lighting/maintenance);
- 2. Staffing costs(wages);
- 3. Book fund (which may or may not include Journal/periodical resources);
- 4. Technology (maintaining computer/CD-ROM resources);
- 5. Cataloguing/Classification costs. (Johnson, Heather 2008).

Finance for each group is normally based on last year's expenditure plus an allowance for inflation.

New Trends

At the stage of information explosion, there was exponential growth in published literature, subject has become inter-disciplinary. Need for Indian as well as foreign books and periodicals have arisen. Such resulted into increase in number of books, periodicals, journals; working papers etc these resources are being poured into the university library have been increasing at much faster rate. "With the arrival of the digital environment in the mid-1990s and the emergence of the hybrid library model, new managerial and financial needs have arisen as the environment of library and information service has become more complex". (Stephen A. Roberts 2003). With the convergence of computer and communication technologies, globalization of knowledge and information is taking place. The introductions of internet and electronic publishing have impact on library collection and services. Technologies used in the past were mostly manual and simple but today they are complex and the libraries and information officers have to depend upon computer communication and network experts for support. When libraries are automated there should be guarantied sources of funding. Automation is more expensive than manual systems.

The university libraries in India receive funding from INFLIBNET to acquire computers and other related infrastructure, employ an information scientist and thus set up an Inflibnet Lab in the library. However the funds provided under this assistance programme are inadequate to fully automate the university library operations and functions. According to UNESCO (1998)," the economic situation in many developing countries is such that many university libraries do not have the resources to purchase information resources, which has had negative and damaging effect on training and research capacities." (UNESCO 1998).

In addition to this Presently, academic libraries in India are facing number of problems like there is rising cost of books in the world market, increase in the subscription rates of periodicals, increase in the conversion rates but university budget for subscription is not increasing in that proportion. "The increase in the value and demand of information which continues to exert pressure on libraries to offer more effective service to their users, has also been gradually leading to a shift in focus from the need for accumulation and ownership of information resources to providing access". (Wanyoike, John 2004). The need for such services has arisen due to the growing demand for up-to-date and client-specific information services. Existing university libraries have come under great financial pressure to cope up with this development. They try to achieve above changes with scare financial resources. In the absence of adequate financial support, it becomes very difficult for university libraries to provide consistent quality services to its readers. Library development and its ongoing services require sound financial provision. Financial management involves the process of financial analysis, identifying, costing and allocating revenue to the resources and activities that allow the parent organization to achieve its objectives. Libraries have to face financial and economic responsibilities and consequences.

"The university library represents one of the largest capital expenditures on any campus and requires ongoing annual investment for it to retain its value and achieve its goals." (Hunt, J.C.2003). To do so they need the clearest vision and mandate upon which to operate. Proper consideration of needs will identify the scale of requirement and the best source of funding to match the needs. At this juncture, need for financial management in university libraries has been arisen. When information is dealt with as a commodity, the financial management of libraries becomes comparatively easy, and economic principles can be applied more precisely. Proper financing is possible on the basis of correct and effective estimation of financial management.

Impact on Higher Education System

Today in the age of technology revolution have changed the concept of education and its teaching and learning method. The emergences of virtual classroom concept and distance education have changed the paradigm of library finance. Traditional approach of library finance may change due to changes occurring in higher education. Today most of the libraries getting the books and journal through exchange and home delivery hence it has change the concept of role of library at university. However this concept emerges at only metropolitan cities but traditional cities may use traditional method for learning and teaching and research. To get update knowledge there is need to developed well equipped library with modern equipment of information for developed new innovation University grants Commission and state government have playing important role by financing to the University however what ever amount suggested by UGC committee to the library it has not utilized the properly. There is need to require special mechanism for library finance.

Today the main source for library finance are state government funding, UGC allocation, library fees of students, donation from various NGO and individuals, and funds from university publication etc. Whatever amount spend by University library is not fulfilling the criteria as per the norms of library the salary grant of staff and other miscellaneous expenditure for maintenance for books and journals, manuscripts are increasing due to increasing the price rate and it is necessary to increase the budgetary provision for library finance as per the norms spell out by the committees. Today subscriptions of the online journals are need to the University and University like Pune is leading University who subscribe the new online journals from various agencies from University budget.

Funding is one of the most important factors in improving the existing library facilities to meet new challenges and requirements. Success of a library largely depends upon its collection, staff and services and these in turn are affected by availability of adequate financial support. "The importance of funding in providing excellent library service cannot be over emphasized. It is the glue that holds the building, collections and staff together and allows the library to attain its goals." (Okiy, Rost B. 2005). As such money can be considered the soul of the library. Inadequate funds impacts the effectiveness of any library. The financial resources should be made available in such way that growing needs of libraries are made adequately. The university library depends on the university and ultimately on UGC for financial support so that proper library services can be provided regularly to the academic community.

Financial Mechanism for Jaykar Library University of Pune

"The University stands for humanism and tolerance, for reason, for adventure of ideas and for the search of truth. It stands for the forward march of the human race towards even higher objectives. If the universities discharge their duties adequately then it is well with the nation and the people."

- Jawaharlal Nehru

These words of Jawaharlal Nehru embody in them the guiding principle of Pune These words of Jawananan 1948, the University has since become one of the University. Established in 1948, the University has since become one of the University. Established in and teaching in the country. The 416 acre campus is leading centre for research and teaching in the placid environs and acre campus is leading centre for restance part of Pune. The placid environs and state of the art facilities provide it's numerous students with an ideal atmosphere to pursue research in various areas of Science, Arts, Commerce and Languages. The University houses 45 departments which provide a wide array of academic programs. Though a young centre, the University has made a significant impact in various areas of research and teaching, and continues to strive for excellence The University of Pune (formerly known as University of Poona) was established under the Poona University Act, passed by the Bombay Legislature on 10th February, 1948. In the same year, Dr. M. R. Jayakar assumed office as the first vice chancellor of the University Shri B.G.Kher, Chief Minister and Education Minister, Govt. of Bombay, took a keen interest in setting apart a beautiful campus for the University. As a result of his efforts, a campus extending over 416 acres was allocated to the University in early 1950.

As per the Maharashtra university act of1994 section 75 (2), every year university budget is presented before senate for approval. This budget estimates is based on the expenditure of last year and considering the expected expenditure on new developments and projects, academic programmes to be implemented in the university. University Grants Commission is the main funding agency to the university which provides funds in three ways. That is non plan grants, plan grants and special funds for specific purpose. Accordingly university of Pune received the grants from University Grants Commission under various five year plan. In addition to major funds received from UGC there are other funding agency which provides funds for research activities, research projects to the university department that is Government of India, Council of Scientific Industrial research, State Government, DST, ICSR, collaborative programs with other foreign agencies. Separate budget for receipt and expenditure are shown under each university department.

Conclusion

The world economy is experiencing unprecedented changes in the 21st Centuries. New developments in higher education and science and technology competition, media revolution and internalization are revolutionizing higher education. We are witnessing several paradigm shifts in higher education from local to national and national to global education. From state controlled to open market economy from general education to an educational driven by market forces from one time education for few to life long education for all from teacher centered to learner centered education. These changes make new demands and pose fresh challenges to our established library university system and practices. A time has therefore come for the researcher to rethinks the present university library financing system from new issue base. The library finance play an important role as an effective tool to develop the human resources by imparting the necessary and relevant education to the student society and by the training them appropriately. A large number of the Universities are suffering from a number of tangles and enigmas.

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Academic Library Services for Wheel Chair Bound Students in Trichy

Geetha, V.¹

Abstract

This is a descriptive study of Academic Library Services in Trichy for adult students (25 -30 years) who are wheel chair bound. The objectives of the study are to identify the information needs of wheel chair bound students, to study the perceptions of libraries and Library Services and to find the problems they face in using library facilities & services. To collect data, a questionnaire with 10 questions was prepared & distributed to 25 students (based on Non Random Sampling Method). 20 filled up questionnaires were received back. The findings showed that students enjoyed reading Newspaper and magazines. The computer was used primarily as a tool for recreation and education purpose and the convenient of the Internet appealed to them. The wheel chair students are deprived of facilities & services of academic Libraries. Transportation was the main obstacle in getting into libraries. The study highlights the suggestions to improve the status of college libraries in Trichy to meet the student's needs.

Keywords: Disabled students, Mobility impartment, Internet, Handicapped persons and Information needs

Introduction

Reading helps the individual to understand the society & his role as a citizen, worker and an individual within own personal problem. It is essential for further personal development and enrichment of life. Good reading habit can feed the creative mind. Libraries have provided needed services to non-disabled users. According to Dr. S.R.Ranganathan's 3rd law, Each & every user should be satisfied with the service provided by the library.

Like other living organism, human being encounter perils during their liver, even during the time before birth. 80 percent of handicapped people of world live in the underdeveloped or developing countries. Recent statistics shows that 21,90,676 handicapped live in India, 16,42,497 in Tamil Nadu, among whom 8% are mobility impartment. Because of accidents & deformity during birth, students with a kind of physical disability form a small part of student population in Trichy. These students are among the disadvantaged or differently abled users.

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Hence, the study attempted to investigate how college library in Trichy are prepared to serve wheel chart bound students to need their information needs. In India research in the area of libraries and disabled is lacking in India. However, the published works in the area are very few. Nevertheless, some students have obtained good experience in participating in national & international meetings during the last two decade. Some Master degree students wrote theses on handicapped students in Academic Library in Iran. But in TamilNadu, no statistical detail is available about the number of distribution of disabled students studying in college. The total number of wheel chair bound students in Trichy is not known. Another reason for the lack of accurate data on wheel chair-bound people is that more of them not be permanent by wheel chair bound.

Information Needs & Wheel Chair Bound Students

There are several reviews concerning the issue of information need of normal users. But, only few studies are available at international level. It is generally agreed that those who are disabled should not be isolated. They should be provided to information just as do able-bodied persons. Their information needs do not vary with normal users. In most cases, their intellectual abilities, needs & interest are likes to be some as those of their able-bodied people, there may be more important differences in physical characteristics caused by the disability. A disability may automatically impose limitations that effect their selection of materials. Denham (1996) suggests that the majority of those with physical disabilities are able to use print sources. This study focus that users prefer electronic sources.

Methodology

The study is of a descriptive type and uses survey method to collect the data from wheel chair bound students studying in 12 Arts and Science Colleges in Trichy. Personal interview and questionnaire method is adopted to collect the data from the respondents. The usage of interview method is to verbalize their thoughts, feeling and experiences fully. Convenient Sampling Method is used to select sample for the study.

A total of 20 students between 20 to 30 years of age who are wheel chair bound were selected and questionnaire was distributed to them. The respondents are permanently wheel chair bound although their specific disabilities differ. 15 filed up questionnaire were received back.

Objectives of the Study

To identify the information needs of wheel chair bound students. To study the perceptions of libraries and Library services. To find the problems they face in using library facilities and services.

Limitations

- The study covers only wheel chair bound students studying in 12 Arts and
- The sample selection is based Non random Sampling Method.
- The student category belongs to 20 to 30 years of age is included. •

Findings & Discussion

The results are:

The participants' hobbies & interest were similar to those of a adult students. Being confirmed to wheel chair did not diminish their enjoyment in watching TV and listening to music etc. Each of the participants in this study had his/her individual interests and abilities

The respondents said that reading was their regular habit. Besides second choice goes to browsing internet for education and recreational purpose.

The study indicated that among the respondents those female respondents were not given permission by their parents to go out than male students.

Among the respondents 55% of wheel chair bound students preferred News Paper & Magazine reading.

30% of wheel chair participants read mostly story books like, mystery, romance, social & horror stories. The low percentage (15%) of them stated that they do not like to read. It could be due to the unavailable of reading materials and awareness also

For reading purpose 5% of them borrow books from library, 20% of them buy books from book shops. 20% of them borrow books from friends. They study indicated that it was true that most of participants obtained books or borrowed on their behalf from libraries by their friends/ well wisher.

The wheel chair bound students indicated that their information needs were not fully satisfied.

In this study, the respondents were not aware of the full range of library services & facilities. Reputer and the services are used. & facilities. Regular users college libraries have better awareness than non-users 85% of participants felt that libraries were useful to students who liked to read as libraries provided them a wide variety of reading materials they need. 15% of participants did not wish to visit libraries due to lack of interest & motivation rather than from only negative perceptions. Thus, they were not motivated to use libraries and they perceived libraries as storage house.

The wheel chair bound participants felt difficulty in accessing the information or not able to understand how things were organized in the library.

All respondents felt that the main problem seems to be the issue of transportation.

85% of wheel chair bound students indicated that they prefer internet sources than print sources. Five students responded that other students did not seem to care some time. The attitude of the student community affect not just the wheel chair bound students but the person accompanying them as well. They said that they need independence.

Most wheel chair bound students were shy and reserved in approaching library staff for help. 50% of them felt that the attitude of library staffs towards them was not fair. The study indicated that most college libraries were located at the first floor or second floors, making it difficult for the wheel chair students to access the library.

There is urgent need for the wheel chair bound students to be information literate. Libraries have the potential to become a continuing centre for them. Also it is that the wheel chair student community be aware that learning does not end when they leave college & that libraries have the potential to support the lifelong reading & learning.

Except reference services other services were not preferred by the wheel chair bound students.

Suggestions

The measures recommended to be taken are given below.

It is suggested that the physical access to library should be improved.

An effective user education programme should be arranged regularly for the wheel chair bound students.

Library promotions should also target parents & guardians as they are the one on whom the students rely to travel out of their homes.

The wheel chair bound students should be given chance to raise their interest and knowledge in the library services. So that, this will motivated and encouraged to take part in library programmes.

The library authority should make evaluation on building, furniture & equipment and environment factors and appropriate steps need to be taken to address the wheel chair bound students.

The library professionals should be trained to serve the disabled persons.

A specially designed National information network should be established to help the disabled persons.

The library Association, Library school can arrange special program on using computer inside the library. Effective orientation programme should arrange at the begging of the academic year for the wheel chair bound students to create awareness on library.

Conclusion

The information needs and reading interest of wheel chair bound students seemed no differences from normal students. Gender, age, interest and involvement in college library are factors that determine the kind of information they require.

The main problem in using library is getting to the library in the college. Within the library area, there are problems relating to stairs, furniture, to equipment, and physical obstructions. The wheel chair bound students need better means of transportation which is preferred by the students primarily than for any other services.

The UGc, Government of TamilNadu and College authority should take steps to enable both able-bodied and disable students to make full use of the college library.

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Fund Generation in University Libraries in Tamil Nadu

Rani, Swaroop¹ and Sundar, B.²

Abstract

This paper brings out the need for fundraising in university libraries in Tamil Nadu. It analyses the present funding methods adopted by these libraries and identifies other techniques of raising funds like forming Friends group, raising annual endowments, having development officer and creating websites. It deals with the techniques and means which have been successfully implemented in other universities.

Keywords: University libraries, University Grants Commission, fund raising, book endowment, Friends group, and websites

Introduction

The economic forces faced by academic institutions are one of the greatest concerns to librarians. Diminishing or stagnate library funding has led to a greater demand for accountability in library spending and the advocating of quality audits and performance measurement as tools to increase efficiency. Management have decided that if the library wants more money for acquisition ,or for building or to launch innovative programs then they have to go out and raise there own fund. Libraries are facing difficulties not only in modernizing and restructuring their work operations but also in maintaining traditional services to their users.

India today has 320 University level institutions besides Open University, institution deemed to be universities, learned institutions recognized by the Union Government and agricultural universities. In addition there are about 1, 5500 colleges which provided educational and -research facilities in different disciplines

Need for the Study

Spiraling cost of library resources, on the one hand and steady / marginal increase in the library budget on the other has affected the efficient functioning of university libraries. Fund is needed for (a) developing adequate document collection (b) providing efficient library services, (c) constructing / maintenance of library buildings (d) improving conditions of service.

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While the large private universities have endowment that date back two or more centuries, few institutions of higher education have been involved in serious fund – raising in India. Present conditions would seem to demand that libraries give all the possible assistance in managing the libraries including finance, Universities devote considerable effort and resources to the development of outstanding library collection to match the expanding need of teaching and research.

Objectives

The study has been conducted

- 1) To identify the funds received by the library regularly
- 2) To suggest methods that can be adopted to increase funds.

This study includes Arts and Science Universities in Tamil Nadu. It excludes agricultural, medical and other deemed universities.

Methodology

The study adopts survey method and data were collected by administering a questionnaire. Questionnaires were sent to ten university libraries and a return of nine has been received. The data collected from the questionnaire formed the primary sources.

Findings

Questionnaires were analyzed and from the filled in data the following findings were drawn. The findings below are funds received by the library regularly.

1. University Grants Commission

University Grants Commission of India is a Union government body that provides funds for government recognized universities in India. It is a central agency established by the Government of India for the improvement and development of higher education in the country and is the major source of income to the university libraries. University Grant Commission's financial grants to the library are mainly "Plan Grants'. These are mainly of three types, recurring, non-recurring and ad hoc grant .All the universities under study recieve UGC grants.

2. Library Membership Fees

The data shows that 10 universities under study collect membership fees ranging from Rs100 - 300/- per student of which an amount of Rs50-100 is refundable. 30% of universities allow affiliated colleges to become members by paying some amount.

3. Gifts

Libraries sometimes receive gifts both in cash and as resources like book. In many Indian universities retired staff and alumni students donate a good number of books. This source is simply complementary and supplementary and cannot be considered as primary and substitution. All the universities under study receive gifts.

4. Over Due Charges

Libraries, generally take resort to the realization of certain fines when the library members lose the books and or do not conform to the library rules and do not return the borrowed books within a stipulated time. The stimulated time various from university to university which ranges from 10 to15 days 100% of the universities get overdue charges .There is no uniform policy to deal with loss of book .One of the university library charges double the cost of the book plus10% for processing.

5. Photocopying

Reprographic services have assumed importance in the dissemination of information, resource sharing and keeping record for future use and reference. Providing Xerox facilities to users and the public is one of the methods to raise funds for the library. 88% of the universities have this facility inside the library.

6. Translation Services

22% of the university libraries provide translation services. These services are fees based and the amount collected from this is meager. Though the charge for this service is high, users who avail this service are few in number.

7. Consortia Membership

Universities are acquiring consortia packages like UGC-INFLIBNET, Emerald, EBSCO database, etc by paying huge funds. This service is given only in university campus. However the services to affiliated colleges are extended only on payment of fees. This should raise the funds for universities. The amount received by university from colleges for this service is added to the library budget. Only 11.1% university provides this facility to its affiliated colleges.

8. Thesis Verification and Collection of Review of Literature

11.1% of university gets fees for one time theses verification. Research scholars stay for few days in the university hostels to collect review of literature from the library. The hostel rent collected so is considered as the fund of the library.

Identification and downloading of reviews of literature on CD/ROM for research scholars is done by 11.1% of university libraries.

Recommendations for Fund - Raising

There are number of fund raising techniques and methods for universities which can be adopted. Following are the few techniques that libraries can implement.

1. Internet

Libraries can use internet to build a bridge over the information gap. Few services that can be fees based are

- (a) compilation service
- (b) E-Magazines can be published
- (c) Multi-lingual catalogue can be prepared Indian National Library compiles Bibliographies on various subjects. Similarly university libraries can compile few bibliographies for there users.

2. Book Fund Endowments

Librarians can identify donors. Shaun Elizabeth Personke (2003) says that donors can purchase materials that are of benefit to the institutions students and faculty and this fact can be very attracting to potential donors libraries should continuously develop a good relationship with users the campus community potential donors and business house. Libraries must be visible with a mission and goals identified and clearly understood to create a successful environment for fund raising.

3. Exhibition

Book exhibition /book fair can be conducted. Besides this an exhibition of universities special collection can be conducted so that the students and people around the area will be aware of this collection. When these resources are used they can be charged. They can also host a fund rising art sale, etc. Librarians can explore the possibilities of conducting invited talks and conferences/ seminars.

4. Celebrating Special Occasions / Cultural Programs

Merrity E Taylor (2000) says that changing people's perceptions is crucial and should be considered a daily task, but awareness can also be created with one huge event that can raise financial support as well as encourage new attitudes. These events can be conducted annually. Some programs can also be designed for special occasions of the college such as Golden Jubilee, Diamond Jubilee etc to raise funds, among others, for library also. The assistance of the students union can be sought to raise library funds by organizing some cultural programs in the university.

5. Friends Group

Many fund raising programs begin with the development of a support group usually a Friend of the library group. Library of Gustavus Adolphus College in St. Peter Minnoesta initiated their friends by first creating a constitution and by laws clearly setting of the group purposes. Hannelore B Rader (2000) thus feels that creating friends group has helped its library to raise funds.

Martin (1998) affirmed "To persuade individuals of organizations to invest in the library and university must articulate their goals, priorities and therefore their fund needs". A project with a clear goal or definitive outcome will motivate current library donors to continue giving and will encourage prospective donors to make the first gift .Hood (1993)says that the University of Illinois libraries brought non donating alumni into fold of giving alumni by soliciting them for the library. Clark C K (1990) and Dolnicks (1996) discussions on friends of the libraries are particularly helpful for those seeking information on this.

6. Creating Library Website

Websites of university libraries can be given wherein SWOT analysis can be done and Weaknesses identified. This would allow the donors to choose there option for donation. For example the blogspote of Indore public library (htpp://Indorepubliclibrary.blogspot.com)has made a SWOT analysis and identified there needs.

7. Identify Funding Agencies

There are few funding agencies like

RRLF, KalKota Ministry of Culture, Government of India Ford Foundation Bill Gates Foundation, USA Laser Foundation, UK. Rotary clubs

Rotary foundation has funded library projects. For example few funded projects follow in India the Valanthalai Rotary Village Corps sponsored by the Rotary Club of Jaffna established a mobile library to decrease the illiteracy rate. Thus, these organizations can be approached for improving the libraries.

8. Publication Activities

Besides the above ways of generating funds, librarians can take up publication activities, marketing/advertising, productions, bibliographic preparation, contract

bulletins and database creation. In the university calendar year Mary Stanley, Library Development officer at the University of Waterloo has found that appeals to the parents of graduating seniors to buy a book in honor of their graduation, seems to get the best results.

9. Few Experiments Undertaken

There are number of experiments under taken for fund rising and has been successful for example the experiment of the idea of friends of the library, at the American Studies Research Center, Hyderabad.. Georgia's University System with the help of governor and general assembly received fund by State lottery. University of Mississippi has successfully formed friends group. Ohio Link is a shared integrated automation system (innovative interface) provides customized fee based services.

Conclusion

Thus it is seen from the above study that Tamil Nadu universities should adopt various fund raising methods. Fundraising methods which have been successful in western universities like –creating book endowment funds, appointing development officers ,creating friends group and having library websites can be much helpful in improving resources and services to the users.

Entrepreneurial libraries will be much in demand in the future to use their vision, Ideas and courage to experiment with new and creative ways to fund their library. Future librarians will need to build a strong partnership, Librarians will need to be excellent and effective communicators within their communities to state their purpose and needs and gather support for their mission and their budgets.

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Efficient Training Methods to Train the Librarians Towards - 2020 "Digitalibs"

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Abstract

In a world where information is more socialised and more online, librarians may have to become debate moderators, mediators of knowledge management, and givers of technical support and community outreach coordinators. If everything becomes virtual, robotic engines will become the librarians. Librarians must venture into the digital space, where their potential patrons exist, to show them why the physical library is still necessary. In the present millennium, library and information professionals are facing the major paradigm shifts. The transition from paper to electronic media which is the dominant form of information storage and retrieval advancement in the Digital Era is a felt problem for the librarians as they are not much aware of latest computer aided digital systems. The expectation of the users regarding library services rendered by the librarians as per the international standard is also a major issue in libraries of this information age. The study is an attempt made to develop the librarian's professional and technical competencies and to enhance their personal set of skills attitudes and values that enable them to work efficiently. The study is accumulated with data from questionnaires and 750 Ph.D. researchers responded from 15 famous universities in South India. Study revealed that Librarians are in need of technical computerized education, they should attend international seminars and conferences, abroad visits and trips along with the training frequently en rich their knowledge and they should be ready to accept paperless society. Further the research emphasized the truth that every where the new trend occupies its position with upcoming technologies. So the librarians should be in a position to accept the changes and train themselves and vigilant about the technological developments.

Keywords: Training methods, Digital era

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PART V - SESSION III

Teaching & Learning in Library & Information Science

Session Chair – Mrs. Sumana Jayasuriya

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New Trends and Developments in Library and Information Science Programmes

Lakshmi, Sampath¹ and Ganesan, A.²

Abstract

Education bridges the gap between perception and practice or theory and practice, which is closely knitted to foster universal and eternal values of teaching techniques. The practice of these values of teaching techniques by the teachers at all times would alone testify to the completion of education. Education inculcates the right blend of teaching values i.e. cultivation, preservation and transformation of knowledge into practice for sanctifying the teaching learning process. which is no doubt a challenging and daunting task for the educators. The survival of the library and information science programme compelled the staff to find ways to connect the generalist information skills already part of their teaching programme more visibly to other programme areas within the Faculty. It has also prompted concern as to whether it could sustain all parts of its traditional library and information science curriculum in terms of cataloging, database development and other specialist information skills. The library and information science programme has effectively had to be reinvented. The new Information and Media degree places greater emphasis on the relation of information study to digital design. The specialist versus generalist discussion is however an ongoing discussion. The approach taken by us, the library and information science educators to the threats to its existing curriculum offers lessons for library and information science educators elsewhere about the need to be more proactive and make a place for ourselves in arenas like those described in the presentation.

Keywords: Curriculum, Information Technology, Techno-friendly, specialisation

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Introduction

The contemporary scenario predominated by information and knowledge perspectives indicate the pressing need to educate and train the library and information manpower towards a sustainable professional competence. The manpower of today will meet in the near future the new challenges and the onslaught of the impact of Information Technology on LIS envisages to make substantial contribution to the ever perpetuating Information Society. They need to be equipped in this context with necessary skills and competency to satisfy the high level, complex and ever growing multifarious information needs of the user. This paper discusses the pros and cons of LIS Education Scenario in the developing countries and stresses the need for model curriculum.

Since dawn of civilization man has been striving to know the unknown. On the long voyage of exploration of unknown man has collected innumerable pearls and pebbles and tried to preserve those, undoubtedly a very fundamental attitude of mankind that initiated the concept of preservation of thought contents or knowledge and gave rise to the concept of library later on. The Vedas for instance have been passed from generation to generation through oral tradition, known as Shruti and Smriti, i.e. to listen and to retain. Side by side, we had also the tradition of preserving manuscripts at places like temples, Dargahs (tombs and shrines), Madrasas, mosques and tolls (schools). The tradition continued during the middle Ages.

So, 'librarianship' in the sense of collecting and preserving books and manuscripts has existed in India since time immemorial, but only in the early part of the twentieth century it began to be treated as a distinct field of specialization with its own principles, techniques, theories and practices.

Techno-friendly discipline

The influence of Information and Communication Technology (ICT) on every discourse of human knowledge is a undisputed and is also considered all pervasive. But a profession which is in "search of identity" has imbibed a friendly internship with technology or mechanization as it was termed then, since the late nineteenth century. The nineteenth century called the scholarly era saw seen the emergence of the two scientific disciplines from the genus of Librarianship – Classification and cataloguing, which today are the most wanton areas in knowledge processing and organization of the electronic era. However the field still suffers from such concepts as the 'digital divide', meaning the differences in the technological competencies of the countries. It is this fact today which makes education distinct in quality and skills vary among the developed and developing countries. Though India is on the fore in ICT developments, its full complement of application and utilization is still at a distance. Take for example, the price, the consortia modes of journal acquisitions. Hence some of these issues have to be addressed to younger generation through education and training in Library and Information Science. For a sustainable development of a nation, today ICT has become essential knowledge to every nation and more so to the developing nations.

In this context a new model curriculum integrating the traditional and, modern knowledge and thought has to be devised and implemented. Despite overall progress achieved by developed nations in this context they are often undergoing brainstorming sessions to evolve new competencies for the information professionals. For example the Special Libraries Association has published a revised edition of the "Competencies for the Information Professionals of the 21st Century".

Indian scenario

W. A. Borden and A. D. Dickinson initiated the formal course of library education in India. Borden established a training course at the Central Library, Baroda in 1911/12 and Dickinson at Punjab University in 1915. The training school at Punjab University was considered to be the second library school known in the world, the first being the Columbia school. Gradually other universities and library associations started setting up library schools. Madras Library Association (1929) and Bengal Library Association (1935) started certificate course. Among the universities, Madras University under Dr. S. R. Ranganathan took over the certificate course from Madras Library Association in 1931. The course was subsequently converted into postgraduate course of one-year duration in 1937. Postgraduate courses also started in other universities subsequently, i.e. Andhra University (1935), Banaras Hindu University (1941) and University of Delhi (1947). University of Delhi in subsequent years started providing facilities for research leading to doctorate degrees. It was again the first to start M.Phil courses in 1977.

In addition to formal teaching courses, some universities have introduced correspondence courses at various levels of education. An important development in non-formal teaching is starting of a degree course by Andhra Pradesh Open University (Hyderabad) in 1985. Mohan Lal Sukhadia University (Udaipur) and Kashmir University (Srinagar) provide correspondence education at certificate level, Punjabi University (Patiala) at diploma level and Madras University (Chennai) both at certificate and degree levels. IGNOU equipped with multi-media instructional system also planned it from 1987. This provides facilities to professionals working at lower level to improve their qualifications and update their limited knowledge and skills and also to those who could not get admission to formal courses earlier.

Changed situation in India

The changing scenario from 1960-2000 and the influence of other disciplines on The changing scenario from 1900 education in India is well documented in the Library and Information Science Education in India Status Report on Library and Information Science Education in India

In India three factors, a) the enactment of library legislation by a number of states in the country, b) the UGC assistance to college and university libraries towards the development of an academic library system in the country, and c) documentation work and services, were responsible for the first phase of development. The first two factors emphasized were on public and academic libraries and the third focused on scientific and technological information systems and services.

These three factors have not only enhanced the professional status but also increased the employment opportunities for library science professionals in public, academic and special libraries in the country. They also brought out contrasting differences in the professional approach in Library Science from that which existed in its early years. The influence of these factors is also reflected in the curriculum of Library Science education and subsequently led to change in the course content and nomenclature. Many university departments of library science upgraded the P-G Diploma in Library Science to Bachelors Degree during this period. The Indian National Scientific Documentation Centre (INSDOC) and Documentation and Research Training Centre (DRTC) courses were also started in this decade, marketing the beginning of specialization in education too.

Course-contents at different levels

Broad outline of syllabuses at different levels are given below:

Present Curriculum:

UGC Library Information Science subject panel have prepared six core modules and one module on electives

The worked out modules are listed below

Module - 1 Foundations of Library and Information Science

Module - 2 Knowledge Organization, Information Processing and Retrieval

Module - 3 Information Sources, Products and Services

Module - 4 Management of Library and Information Centers/ institutions

Module - 5 Information Technology: Basics and Applications

Module - 6 Research Methods and Statistical Techniques Module - 7 Electives: Information Systems

BLIS Course

- 1. Classification (Theory and Practice)
- 2. Cataloguing (Theory and Practice)
- 3. Library Administration
- 4. Library Organisation
- 5. Physical Bibliography and Reference
- 6. Documentation

MLIS Course

- 1. Universe of knowledge: its development and structure
- 2. Depth classification (Theory)
- 3. Advanced cataloguing
- 4. Library and Information system and management
- 5. Literature survey
- 6. Research methodology
- 7. Information systems and services
- 8. Project report

Associate Ship Course

- 1. Information society and information communication
- 2. Sources of information
- 3. Information processing and organization
- 4. Information system and services
- 5. Information products and services
- 6. Information technology
- 7. Information systems management

8. Elective paper (Research methodology, Informatics and collateral areas, Business information system, Patent information system, Geological information system, Medical information system, Technical writing etc.)

9. Dissertation

We have been stuck too long to the traditional course contents, but the situation is gradually changing as more and more learning and teaching centers are incorporating the expanding dimensions of the discipline in the course contents. The effort is still sporadic. There is a need for a national body to take up this job earnestly and recommend a model curriculum for different levels of courses.

In view of the emerging network environment, the fundamental shift in the goals of the library, and the changes in information storage and delivery mechanisms, the educational programmes should cater to the needs of these changed settings by including in their course contents the knowledge and skills required to function effectively in such an environment. Even within the traditional library the nature time and activities will be significantly different from what they were effectively in such an environment of significantly different from what they were of operations and activities will be significantly different from what they were

In India, a countrywide exercise was made to articulate the knowledge (theory, in an interactionals) which could be packed in the Library and Information in the second se In India, a countrywide excitotse the packed in the Library and Information skills, and practicals), which could be packed in the Library and Information skills, and practicals and Training Curriculum with the help of experts in skills, and practicals), which could be prevented by the expert committee subject panel and Could well Science Education and Training Committee subject panel and Curriculum defined modules prepared by the expert committee) were presented before the forum of chairperson defined modules prepared by the experied before the forum of chairpersons of the Development Committee) were presented before the forum of chairpersons of the University and Information Science) in different university Development Committee, where provide a standard of the standard of the Board of Studies (Library and Information Science) in different universities. This Board of Studies (Library une and enabled them to develop a viable curriculum finding has facilitated the debate and enabled modern practices, skills and technic a balance between the traditional and modern practices, skills and techniques.

The courses in Library Information Science be more practical oriented and also expected that the students would come out with substantial gain after completing the courses. Course content which relates to teaching of Automation and Information Technology components and their applications to Library Work

In the western countries many schools have made a thorough revision and development of course programmes and also introduced new courses to meet the needs of employers in industries, and the public and private sectors. The introduction of new programmes should therefore be seen to some extent as reflecting the 'Pull-Push Effect' of recognizing the increasing need for the professional workforce to match the growth and significance of information industry and the expanding higher education system to provide the appropriate workforce.

The management of Library and Information Centers has assumed a new dimension due to the adoption of different services directed to different kinds of Information needs and different kinds of users. This can be considered a direct impact of economic development and the growing dependency of information on the national economy. As stated in the report "Library and Information entering into new phase," in the modern economy the importance of information has increased and which calls for better use of existing, services, and continuous improvement of information serves to meet explicit and implicit needs.

The computers were successful in processing and retrieving of information, but restricted their work to "In-house". The major change was brought in by the application of Communications and Storage Technology. The impact of Information Technology and its varied changes in application cannot be expressed in these forumentations and storage reconciliant to the second in these few pages but can be envisaged by the services available today through the Internet. The internet th the Internet. The impact of Internet on Library and Information services and the concept of a digital or virtual library should be reckoned as the nascent fields of study in recent we study in recent years.

As early as in 1982 Lang in the UNESCO report proposed a modular approach to the curriculum for Information advocated in the curriculum for Information Studies. A similar approach was also advocated in

the Asia-Pacific report on "A Curriculum for an Information Society" (1998). Dr. Vasanth Gowariker has expressed a view to changes in the approach in the higher education and suggested a "Cafeteria" model for the courses offered by the universities. Accordingly in this paper a proposal of a modular approach is made for LIS with 6 core modules and 1 Elective module. The worked out modules are;

MODULE - 1: Foundations of Library and Information Science

MODULE - 2: Knowledge Organisation, Information Processing and Retrieval.

MODULE - 3: Information Sources, Products and Services

MODULE - 4: Management of Library and Information Centers/Institutions

MODULE - 5: Information Technology: Basics and Applications

MODULE - 6: Research Methods and Statistical Techniques

MODULE – 7: Electives: Information Systems

Recommended by:

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Dr. Pandey S.K.Sharma as Secretary to the Committee – UGC, Library Information Science subject panel.

For each of the modules, the following concepts can also be added to enhance the effectiveness, thorough teaching, practice and evaluation. Course objectives Unitwise course content Special note on practical component Learning outcome of each module

Conclusion

Many suggestions have been made by various professional experts and governmental committees to improve the quality of LIS education. These are:

1. The syllabus at all levels should be updated regularly and areas of Information science should be correlated with those of Library science.

2. National centre for education and research should be established to plan and coordinate cooperative programmes, like exchange of personnel, curriculum planning, extension lectures, continuing education programmes, etc.

3. The quality of teaching staff should be improved.

4. Seminars, tutorials, assignments and field tours should be effectively integrated with Curricula involving outside experts and agencies.

5. Continuing education/in-service training facilities should be recognised as an essential part of manpower development programmes and sufficient financial resources may be allocated for this.

6. To improve the quality of research, talented scholars should be provided financial assistance by research organizations and funding agencies.

7. Last but not the least, our country has no information policy though we have already crossed more than half a century after Independence and so, setting up of a National Information Policy is vital in the context of today's globalization and IT revolution. Right to Information should be recognized as a fundamental right of the people.

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E-Learning a Pulpit for Technical Institutions: With special reference to National Program on Technology Enhanced Learning (NPTEL)

Vinitha, K.1

Abstract

Technical education in India contributes a major share to the overall education system and plays a vital role in the social and economic development of the nation. The beginning of formal Technical Education in India can be dated back to the mid 19th Century. All India Council for Technical Education (AICTE) was set-up in November 1945 as a national level Apex Advisory Body to conduct survey on the facilities on technical education and to promote development in the country.

Impact of ICT has brought rapid change from Teacher Centeredness to Learner Centeredness and in turn Environment/ Industry Centeredness. Technical education has taken a flyover from chalk- talk methodology of teaching to e-learning platform, which in turn has forced the Government of each and every country to work on project that could plan and implement Technology Enhanced Learning (TEL). Ministry of Human Resource Development (MHRD), Government of India initiated and implemented a project entitled "National Program on Technology Enhanced Learning" (NPTEL). AICTE has farmed norms stating that availability of NPTEL facility at the library is essential. The paper has highlighted the salient features and overview on the NPTEL e-learning courses that has influenced the technical Institution which has become the order of the day.

Keywords: E learning, NPTEL, TEL, Open Course Ware

Introduction

The history of imparting formal Technical Education in India can be traced back to mid 19th century, although it got momentum in 20th century with the set up of Constitution of Technical Education Committee of the Central University Board of Education (CABE) in 1943; Preparation of Sergeant Report in 1944 and Formation of All India Council of Technical Education (AICTE) in 1945.

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With the country gaining Independence in 1947, the development of Technical Education had become a major concern for the government of India to face the new challenges and move the country forward.

In order to maintain the standard of Technical Education, a statutory authority. The All India Council for Technical Education (AICTE)- was set up in 1945. AICTE is responsible for planning, formulation and maintenance of norms and standards, quality assurance through accreditation, funding in priority areas, monitoring and evaluation, maintaining parity of certification and awards and ensuring coordinated and integrated development and management of technical education in the country.

Technical Education Courses in India: The courses, which are known as 'technical' in India and therefore come under the purview of All India Council of Technical Education are - degree and diploma courses in Engineering, Master degree Courses in Engineering, Master of Computer Application (MCA), Master of Business Administration (MBA), Pharmacy Courses, Courses in Architecture and Applied Arts and Hotel Management and Catering Technology Courses.

The number of AICTE approved institutes that offer engineering degree courses in India is - 4,39,689. There are around 1244 institutes in India that offer diploma courses in engineering, 415 institutes offer diploma courses in Pharmacy, 63 institutes offer diploma courses in Hotel Management and Catering Technology Courses and 25 AICTE approved institutes that offer diploma courses in Architecture. The number of AICTE approved institutes that offer master of Computer Application courses in India is 1012.

NPTEL stands for National Programme on Technology Enhanced Learning which is an initiative by seven Indian Institutes of Technology (IIT Bombay, Delhi, Guwahati, Kanpur, Kharagpur, Madras and Roorkee) and Indian Institute of Science (IISc) for creating course contents in engineering and science. The main objective of NPTEL program is to enhance the quality of engineering education in the country by developing curriculum based video and web courses. NPTEL as a project originated from many deliberations between IITs, Indian Institutes of Management (IIMs) and Carnegie Mellon University (CMU) during the years 1999-2003. A proposal was jointly put forward by five IITs (Bombay, Delhi, Kanpur, Kharagpur and Madras) and IISc for creating contents for 100 courses as web based supplements and 100 complete video courses for forty hours duration per course. Web supplements to cover materials that could be delivered in approximately forty hours. Five engineering branches (Civil, Computer Science, Electrical, Electronics and Communication and Mechanical) and core science programmes chosen initially based on the model curriculum suggested by All India Council for Technical Education (AICTE) and the syllabi of under graduate engineering programmes of major affiliating Universities in India.

Stupendous skin texture of NPTEL

- > The copyrights of NPTEL are owned by the MHRD, IITs / IISc and the faculty members.
- The focus areas of NPTEL project are i) Higher Education, ii) Professional Education, iii) Distance Education and iv) Continuous and Open Learning.
- In India we have a shortage of fully qualified and well trained teachers in Technical Education. Hence, it is important for institutions like IITs, IISc, NITs to disseminate teaching / learning content of high quality through all available media. NPTEL would be among the foremost and an important step in this direction and will use technology for dissemination of course content.
- NPTEL contents can be used as core curriculum content for training more teachers for effective implementation of higher education in professional courses.
- A large number of students who are unable to attend scholarly institutions will have access to quality content through NPTEL
- All those who are employed in industries and who require continuous training and updating their knowledge can benefit from NPTEL courses.
- MHRD encourages faculty of IITs / IISc to convert their electronic content to text books in various engineering and science subjects.
- Except few courses, the rest of the materials are likely to be distributed under a Creative Commons license in future.
- Already around 1.62 lakhs of users (working professional 50%, students 42% and Teachers 8%) were registered in the NPTEL website. This includes the users of 1.21 lakhs from India, unknown locality of 0.31 users and 0.1 lakh from other countries. Around 6 lakhs visits to NPTEL website have been recorded.

NPTEL vs MIT open courseware

The aim of both NPTEL and the MIT Open Courseware are same.

Open courseware project by the Massachusetts Institute of Technology (MIT), USA makes available course materials freely to the rest of the world. Similarly NPTEL also provide open course materials for engineering and science students and teachers freely.

NPTEL differs with MIT OCW in the following ways:

- NPTEL is based on the syllabi of All India Council for Technical Education (AICTE) and the slightly modified curricula of major affiliating Universities. Institutions can build their own versions of NPTEL courses based on their curriculum design using the NPTEL materials.
- The focus of NPTEL is to build at least one version of each course offered in all of Science and Engineering in India, from B.Tech. / B.Sc. to Ph. D. programs.

- > Workshops on NPTEL courses will be conducted for the benefit of users like Workshops on NFTED counter and to arrange interaction with the course developers, teachers and student and to arrange for each course where students.
- teachers and student and to all angle for each course where students, developers.
 To build a course-specific web space for each course where students, teachers
 To build a course anywhere in India and outside would be encouraged to be anywhere in India and outside would be encouraged to be anywhere in India and outside would be encouraged to be anywhere in India and outside would be anywhere in India and outside would be anywhere in India and outside would be anywhere in India and outside would be anywhere in India and outside would be anywhere in India and outside would be anywhere in India and outside would be anywhere in India and outside would be anywhere in India and outside would be anywhere in India and outside would be anywhere in India and outside would be anywhere in India and outside would be anywhere in India and outside would be anywhere in India and outside would be anywhere in India and outside would be anywhere in India anywhere in India and outside would be anywhere in India anywhere in To build a course-specific web spectral outside would be encouraged to create and other users anywhere in India and outside would be encouraged to create to create the subject in factorial digital library for each subject in factorial and other users anywhere in users anywhere in the adjust of the subject in future threaded discussions and to build a digital library for each subject in future.
- threaded discussions and to build approximately 4500 hours) lecture in future. In NPTEL there are 117 video (approximately 4500 hours) lecture courses (using the state of th In NPTEL there are 117 video about 400 video lecture courses (with about from phase I and there will be about 400 phase II. In addition video is the end of phase II. In addition video is the end of phase II. from phase I and mere with the end of phase II. In addition, video lectures at the end of NPTEL are also being made and lectures 16000 hours of lectures) at the prepared already by IITs outside of NPTEL are also being made available as

Administration of NPTEL

National Programme Committee (NPC) headed by the Joint Secretary, Higher Education, MHRD oversees implementation of the programme and offers policy guidelines and financial structure. Programme Implementation Committee (PIC) headed by the Director IIT Madras enables the smooth functioning of the project in several phases and takes care of content creation and technology implementation.

Role of industries in NPTEL

Industries can adapt one or more courses on a specific subject to train student population and offer them better financial rewards and career opportunities.

IT and core engineering industries can join hands to do the following:

- > To design comprehensive online tests, assignments and assessments for students.
- > To sponsor local teams with the NPTEL faculty for training teachers and students.
- > To design parameters for effective learning of any given subject and offer expert training to colleges.
- > To contribute the process of creation of contents which would address the short and long term training requirements of industries ...

The value addition can be enormous if right partnerships are formed between Industry and Academia.

NPTEL courses

In phase I, course materials have been developed for 126 web courses. Lecture contents are also being made available for 117 video courses. Both the web and video courses mostly and available for 117 video courses. Both the web and video courses mostly cover five major engineering disciplines and the core science curriculum.

The content generation is spread across all eight institutions. The video contents are accessible freely through the You Tube channel http://www.youtube.com/iit. We need to install the Flash player and Real media player in the system and to follow the instructions in the website to access.

Web contents and access to embedded video lectures from youtube are available free of cost through the NPTEL website http://nptel.iitm.ac.in.

The subject wise breakups of courses are as follows: (as on 12.05.2010)

Branch	Web	Video	Total
Basic Courses (Sem I & II)	16	13	29
Civil Engg	24	18	42
Computer Science & Engg	22	17	39
Electrical Engg	16	23	39
Electronics & Communication Engg	20	22	42
Mechanical Engg	27	23	50
Ocean Engg		3	3
Biotechnology		2	2
Mining		1	1
TOTAL	125	122	247

Table 1. Subject wise breakup of course

The numbers are changing continuously as the web site is being updated periodically. The complete list of courses with subject, content type, developed institutions and the name of coordinators are available in the NPTEL website *http://nptel.iitm.ac.in*

Salient features of course formats

Table 2. Salient features of Web & Video courses of NPTEL

Web	Video
2D and 3D animations	Live class room sessions
Interactive codes	Chalk and talk
Video clippings	Tablet writing
Voice supplements	Power point presentations
Easily downloadable format	Interactive codes

Courses proposed in phase 2

The objectives of Phase 2 are to create contents for science and engineering courses in all major disciplines as well as specialized and newly developing

interdisciplinary subjects for which there is very little academic expertise in private colleges.

Branch	Total No. of
Aerospace Engineering	Courses
Chemical Engineering	60
Chemistry & Biotechnology	70
Mathematics	60
Physics	60
Materials & Metallurgical Engineering	60
Management, Social Sciences & Design	60
Biotechnology	30
Ocean Engineering	20
Textile Technology	30
Nanotechnology	20
PG level courses for branches covered in Phase I	100
Total	600

Table 3. Proposed courses for phase 2

Promotion of NPTEL courses

Several promotional mechanisms have been proposed.

- To conduct course specific workshops by bringing together the course developers and the teachers and representative students who are likely to use the lecture materials for interaction to understanding better the courses.
- > To conduct workshops in selected regions all over the country.
- To create subject index and keyword search for both video and web materials through a search engine.
- > To create course-specific bulletins / discussion boards in the web site.
- To create a course-specific Edupedia similar to Wikipedia and a digital library.
- To create course specific FAQ through all of the above.
 To create course specific FAQ through all of the above.
- To encourage teachers in various colleges to use NPTEL courses to prepare localized versions for their requirements.
- To share the expertise on e-learning, content development, content dissemination with interested Institutions to set up their own e-learning portals.
 To distant
- To distribute the NPTEL content both web and video to any interested institution for its internal use.

> To set up a video-on-demand facility in IITs and IISc for the benefit of students, teachers as well as professionals from industry and open learners.

Access to NPTEL courses by institutions

Web and video contents developed in the first phase are available free of cost to all Government engineering colleges and Government aided Institutions approved by the AICTE. All affiliating Universities such as Anna University, JNTU, VTU etc which are under the respective State Governments can have the contents posted in their websites for use by University Departments.

Institutions, Industries and Corporate can buy the web and video contents by sending the advance payment in Demand Draft (Electronic fund transfer facility is also available).

Category	Web Courses	Video Courses
Government funded. Aided Institutions, Government agencies & Government enterprise	Rs. 500 for three DVDs to cover postal charges and cost of materials	Rs.15,000/- for three 500GB SATA hard disks (includes postal charges) OR Free, if institution provides three hard disks and postal charges
Private Institutions / Corporate	Rs.50,000/- for three DVDs	Rs.50,000/- for three 500GB SATA hard disks (includes postal charges)
Institutions ordering individual courses	Currently not available	DVDs for Rs.1000/- per course title* (30 to 45 lectures)

Table 4. Price details -NPTEL Course ware-Institution

* Cost per Video Course Title is Rs.1000/-

Cost for multiple course titles: Number of Courses x Rs.1000

Access to NPTEL courses by individuals

Individuals can access the contents freely and without any registration to the NPTEL website. For viewing video lectures which are streamed with the help of YouTube, broadband connectivity is a must. If we want to get the lectures in DVD media, we have to pay a fee per course as given below.

Category		Web Courses	Video Courses
Labriduals	Residents of India	Currently not available	DVDs for Rs.200/- per course title* (30 to 45 lectures) + postal charges**
Individuals Of co	Other countries	Currently not available	DVDs for US \$100 per course title* (30 to 45 lectures) + postal charges**

Table 5. Price details -NPTEL Course ware-Individuals

* Cost per Video Course Title is Rs 200/- + postal charges**

Cost for multiple course titles: Number of Courses x Rs.200 + postal charges**

The postal and e-mail address to get the web and video courses available in the NPTEL website http://nptel.iitm.ac.in

Execution of NPTEL

- > The contents may be hosted on a web site local to the institutions (intranet).
- > Technical help for setting up video streaming within the Intranet using a few commercial or free streaming servers will be provided if necessary.
- Distribution of the contents by Universities / Institutions to their students and teachers through print or other electronic media such as DVDs is not permitted.

Real time elucidation

Impact of ICT has influenced the librarian to switch over to the modem Technology for providing service to the Goggle generation .Today's users need the resource is electronic form, they no longer want to attend the class room/blackboard teaching, at a concept of anytime, anywhere access .which is the order of the day, Technical education has taken a fly over of teaching to e learning platform. The paper entitled 'E- Learning a pulpit for Technical Institutions: MHRD (Ministry of Human Resource Development) has taken necessary initiative to implement the project NPTEL (National program on Technology Enhanced Learning) at the right time in the country with much significance to the academic librarianship with respect to the Technical Education in India.

As a Librarian of an Engineering college of the country, it has become my duty bounded service to provide an e-learning platform to my users particularly students of my vicinity. We have purchased the video lecture for our students, copy of the same has been given to each and every department of the college, thereby the staff members get updated with the concept and lecture follow. These videos are viewed by the users in the Audio/Video Section of our library; the same is available via Wi-Fi connectivity along the campus. Its has been proved at various arena a shoot up in the university results and also the placement.

Conclusion

NPTEL brings all the best teachers in the country under the one umbrella of NPTEL and make the courses available to the user community freely to face the challenges of education in India posed by the unprecedented and rapid economic growth. There is already a move to create open virtual laboratories in the Internet for engineering subjects initiated by IIT Delhi to forge strong ties with major academic initiatives worldwide like MIT OCW, Commonwealth of Learning, Digital Library initiatives etc and with industry for developing new technological tools for learning and dissemination. When the second phase is completed, NPTEL becomes the largest video repository of technical lecture courses in the world. If the goals of NPTEL (educate, get educated with technology and prosper) are fulfilled then this is one of the most significant achievement in the field of e-learning not only in India also worldwide.

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Ensuring Right to Access to Information and Learning Strategies in Web Era

Arokiasamy, Martin¹

Abstracts

Right to Information and learning strategies are complex in nature and multi-faceted phenomenon and for the foreseeable future will continue to be a major trend effecting all spheres and levels of our education These are the process of promoting and enhancing system. interconnectedness among educational groups, institutions, companies and countries brought about by technological changes. Information management is globalized i.e., organized across national boundaries. Two of the main bases of education are the right to information and learning strategies. These are highly knowledge intensives because knowledge is easily portable it and lends itself easily to globalization. Certain knowledge becoming obsolete very fast with accelerating development of information and communication technology (ICT) and it has occurred fast transformation of societies into 'knowledge societies'. Acknowledging this the 21st century has been described as "Knowledge Century Era'. In the words of Peter Drucker "The next society which will be a knowledge society in which knowledge will be the resource and knowledge workers will be the dominant work force.

Introduction

Right to know is closely linked to other basic rights such as freedom of speech and expression and right to education. It is an attribute of liberty. Viewed from this angle, information or knowledge becomes an important resource. An equitable access to this resource must be guaranteed.

Right to Information (RTI) has an important economic dimension, besides political freedom to lead a life with dignity, unfettered by domination and discrimination. The full interpretation of the RTI Act 2005, throws up a wider and deeper meaning than what it appears to be outwardly. So the meaning the importance the relevant categories of information the mechanisms that can ensure access to information and the programmes enabling people to use information in any context needs to be discussed through the learning strategy.

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In terms of the section 2(f) of the RTI Act 2005, information has been defined as any material in any form including records, documents, memos, e-mails, opinions, advices, press releases, circulars, orders, logbooks, contracts, reports, papers, samples, models, data material held in any electronic form and also information relating to any private body which can be accessed by a public authority under any other law in force for the time being.

Access to Information Services

Information services to the people is important because the access to governmentcontrolled information provided by National, State Central Libraries has to help to bridge the knowledge gap between the rich and poor, rural and urban, rulers and the ruled, the managers, distributors and the consumers. The inequality in knowledge is also responsible for social superiority and inferiority complexes reinforcing and perpetuating social and economic disparities. These in turn create a political clout and leverage for monopolizing information providers including libraries.

RTI Act does not think off provision for access to first category of information. The accessibility to the first category of information is almost free for urbanites areas as well as for those classes of people who are economically in the upper status of society. But to the villager or an economically backward citizen that information is not available or accessible. The RTI like legislations of in advance countries have not touched this category of information because their governments have already ensured its availability to each and every citizen through public library legislations and by establishing information systems and networks extending to even remote locations.

Information Literacy

Information Literacy is a survival skill in the Information Age of web era. In the abundance of information that floods their lives, information that floods their lives, information literate people know how to find, evaluate, and use information effectively to solve a particular problem or make a decision. Information literacy aims to develop both critical understanding and active participation. It enables people to interpret and make informed judgments as users of information and thereby to become more powerful participants in society. Information literacy is about developing people's critical and creative abilities.

Right to Information World wide

RTI of the first category has been ensured by UNESCO public library manifesto and Library legislations in most of the countries from the beginning of twentieth century. As librarians we are aware of this aspect in the context of study of library systems and their legislation. Legislations on the right to second category of information that is administrative information have been seriously thought off only from 1940s. The UN's Universal Declaration of Human Rights of 1948 had a catalytic effect on movements for 'open' governance worldwide.

Many democratic countries have taken legislative action to give its citizens the right to information about the government and its agencies since UN declaration. Countries like USA, Canada, France, Scandinavian countries, Australia and New Zealand, South Africa, Malaysia, Sweden etc also passed legislations in the seventies and the eighties. Even the Soviets, have realized that "the State does not claim monopoly of truth any longer".

In keeping with the spirit of the Universal Declaration of 1948, (Article 19) the preamble of the Constitution of India, adopted in 1950, in its Article 19(1) (a) provides exactly similar guarantees to the citizens. The letter includes the right to "freedom of speech and expression" as one of the fundamental rights listed in part III of the Constitution.

Right to Information Act 2005 (Act No.22/2005)

In 2004 Government of India appointed National Advisory Council to guide as a policy making body for the government. The Council took up the job of drafting the RTI Bill at its very first meeting. The council involved the NCPRI and the Commonwealth Human Rights Initiative (CHRI) in the task.

The First draft proposal of the RTI Bill was presented to Parliament on 22 December 2004. This draft, however, seems to have been watered down from what was recommended by NCPRI and CHRI, allegedly under pressure from the Civil Service. Under pressure from civil society groups, more than a hundred amendments were made when the act was finally passed on 12th October 2005. Under the terms of the Act, any citizen of India may request a department of the Central Government, State Government of Public Sector company or bank for information on almost any question related to the department or company's functioning. The government body is expected to comply within thirty days, failing which the officials responsible for non-compliance faces financial penalties and, in persistent cases, jail terms. The Act also requires government bodies to publish certain specified information on its web site.

It is considered a major milestone in the journey towards transparency in governance and fight against corruption. Government officials continue to complain that the law goes too far and that by requiring them to disclose file nothing, it leaves them open to blackmail and intimidation. Opponents have generally not been sympathetic to such intentions saying that such complaints are merely expressions of frustration at having to function under the glare of public 2006 Central Government, allegedly under pressure from bureaucrats, unsuccessfully tried to bring in an amendment to the law that would substantially limit the scope of the information required to be disclosed. It was beaten down.

Information to be provided under RTI Act

Under the Act (Section 2(i), right to information includes the right to Inspect works, documents, and records. Take notes, extracts or certified copies of documents or records, and also obtain information in the form of printouts, diskettes, floppies, tapes, and videocassettes or in any other electronic mode. Exemptions are there but are irrelevant to the average citizen. So they are not dealt here. Also discussion of the details of the Act clause by clause is not our intention here.

The RTI Mandate

According to the mandate of RTI 'right to information it is said that Chief Information Commissioner (CIC), Information Commissioner (IC), and Public Information Officer (PIO) should be appointed in all central government, ministries and departments and these have to provide required information to the public within the stipulated time. Each state will also have its own Information Commissioner. Additionally, an officer at each sub-divisional level or other appropriate sub-district level shall be designated as PIO.

Knowledge Dissemination in the Digital Age

Life long learning is essential in the "Knowledge age" as everyone needs to update his/her knowledge to remain relevant and productive in the new economy. Learning strategy needs to be different in the digital age to leverage advances in ICT for innovative learning solutions, which facilitate "learning to learn". Learning to learn helps us to pursue life long learning and enjoy learning. Preparing students for an unpredictable world will require vision, above all things. Inherent in this vision are several key realizations; that we are working to prepare a new kind of student: that we are using brand new tools for a life that we cannot clearly seen anticipate or describe to; that embedded in this challenge are fantastic opportunities; and that teaching should and could be the most exciting profession on the planet.

The digital revolution has intensified the move towards knowledge codification and sharing of codified information resources from universally accessible digital libraries connected through communications networks. The knowledge-based economy is characterized by the need for continuous learning of both codified information and the competencies to use this information. The capabilities for recognizing patterns, interpreting and decoding information codified through information technologies can only be done through learning.

Importance of Learning Strategy Environment

Studies conducted in developed countries such as U.K. and Australia reveal that e-learning has a positive impact in transforming learning, empowering learners and teachers and prepare students to face the future with confidence. Studies further suggested that even though infrastructure such as computers, networks and broadband Internet access are essential for the success of e-learning initiatives, they are not sufficient. We need to create a learning environment that helps students enjoy learning and learn how to learn.

Albert Einstein once said "I never teach my pupils; I provide only conditions in which they learn". We need to create an environment that helps students enjoy learning, find learning relevant and meaningful, develop skills to learn how to learn and constantly think out-of the - - box to solve problems of real world situations by applying their knowledge in different ways. Technology is helping us to think innovatively in creating and sharing knowledge. The knowledge grows exponentially with sharing and collaboration in a networked world. Sharing the learning environment and knowledge through collaboration enhances learning opportunities for all.

Learner-Centric Strategy

Learning is an active process in which any meaning is developed on the basis of experience. Learners actively construct their own knowledge by connecting new ideas to existing ideas on the basis of their experience where structuring and restructuring of ideas is an essential part of the learning process. Learner centric pedagogy gives primacy to learner's interest, experiences, preferred learning style and their active participation. The content design should enable learners to construct knowledge from their own experience in their own way and develop multiple perspectives. Learner centric approach also allows learners to learn at their own pace and to engage with concepts, reflect on the underlying cause and effect relations, deepen patterns, similarities and interconnections to understanding. Active engagement involves enquiry, exploration, questioning, debates and reflection, leading to theory building and the creation of ideas. So the focus should be on underlying principles of the rights of learners, how knowledge is created, how it is used and how learners engage and reconstruct knowledge in the web era.

Need of Learning Strategy in the Web Age

We need a learning strategy to implement RTI and unify the initiatives by Government, industry, educationists and educational institutes, that extends the reach of quality education to all; and prepare ourselves through our education system, to cope with an ever-changing world. The strategy should help shape the vision of learning for future where in every student enjoys learning with RTI, free from stress caused by learning without understanding. We need to balance elearning with traditional methods, using technology as an enabling tool to enrich the learning process. The main purpose is Every student learns with Information and Communication Technology (ICT) to achieve her/his full potential. We need to create and provide access for all to a learning environment that helps students learn how to learn and achieve their full potential in this web age.

Strategic Vision

In the knowledge age creation of wealth will largely be determined by how one continuously acquires and applies knowledge to the changing needs of the society. So we need to work towards an education system which prepares students for life long learning. This requires an environment in which students enjoy learning, develop curiosity, learn how to learn by learning to share and sharing to learn. Learning flexibility with control over the learning process, learning by doing through projects and simulations, learning together by sharing knowledge, interaction and collaboration, and learning with understanding by learning how to learn makes learning enjoyable. Innovation in teaching and learning by leveraging technology helps us to enhance the learning experience of students. ICT facilities presentation of subject matter with graphics, 3D animations and simulations, multimedia presentations help teachers to explain the complex concepts in a way, which is simple easy to understand and make learning interesting and enjoyable way.

ICT in the Education System

According to the US Web-based Education Commission 2000 while technologies may differ in format, their aims are common. They include: more interaction among students or with the instructor; the encouragement of more out-of-class student reflection; and the ability to provide synchronous and asynchronous delivery to deliver learning directly or to 'store' it so that learners can access it when required. The same Commission notes that today's students increasingly expect that their courses will be integrated with online materials or discussions. From the new technologies and the knowledge economy there emerges a new way of learning, which is self-directed, informal, just in time, any time, any where, self paced, collaborative and life long. The new technologies shape the new learning and in turn will shape the new education system with by a customized model, which allows individuals to select and make knowledge, which is of interest and value to them – and others. For teachers, these new developments represent huge challenges and the related requirements for professional development are almost incomprehensible.

Excellence in Educational Technologies

Centre for excellence in educational technologies dedicated to research in new methods of teaching can train teachers to be more creative and innovative in their teaching. Teachers empowered by IC technology create an environment and conditions in which students enjoy learning and learn to learn. We should stimulate greater innovation in instruction design and teaching methods to accelerate preparing students to face the challenges of knowledge in the web age. The focus should be on design flexibility for teachers and engaging activity for learners. We also need research to map out future directions. This research should reflect how teachers teach and learners learn. As we research and develop more innovative pedagogical methods, we should look for ways to deliver them more effectively through e-learning with the help of ICT.

Centre for excellence in educational technologies is required to train teachers in information and communication technologies to enable them to utilize e-learning technologies for developing content anchored in instruction design with good pedagogy in creative and innovative ways. We can achieve innovation in teaching only by ICT and the supporting teachers to share their knowledge and methods of teaching to evolve best practices and interesting ways of teaching. Teachers need to be able to find access, create, use and adapt the resources they require to build lessons that will suit their teaching methods and the learning styles of their learners with a common approach to technical, pedagogical and quality standards.

Conclusion

Learning environment plays an import role in transforming learning and helping students develop curiosity and enjoy learning. Students learn how to learn and apply what they learn to new situations to find innovative solutions. The ICT only will enable students to learn the rights learning's. We need a strategic approach to create such a learning environment in our higher education system. The key elements of such a strategy are civil rights, strategy, content, technology, access and collaboration. The teacher is at the heart of the strategy to develop a vision and realize it. The learning strategy in collaboration with technological supports can only make high standard in our education systems and it will ensure all rights all over the world.

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Information Literacy Curriculum and Its Practical Application to the NILIS Post-graduate Courses

Ranaweera, Prasanna¹

Abstract

This paper investigates the basic components of the information literacy curriculum drawn up for University education. In 2005 the National Institute of Library and Information Sciences (NILIS) introduced and implemented an information literacy (I.L.) curriculum for the postgraduate courses, in order to improve students' information literacy skills in the areas such as, Defining the research topic, Identifying information sources, Using the search strategies, Evaluation of information and etc. The NILIS, I.L. curriculum is based on Empowering 8 Information Literacy Model. Further, this paper will focus on the successes and drawbacks of the NILIS I.L. curriculum that was implemented during the last four years. The NILIS curriculum has been evaluated based on NILIS students' feedback on the curriculum.

Key words: Information Literacy, Information Literacy Curriculum, University Education

Introduction

Information Literacy has become the most spoken term in the field of Library and Information Sciences, during the last two decades. When the libraries opened their doors to the public, through the concept - book store house to knowledge extension, library professionals and educationists had to work out new methodology in order to enable libraries to be used more effectively. This practical approach to information by the users of the library, was identified as information literacy skills. Consequently, Librarians planned and implemented various types of information literacy programmes in order to facilitate the university students and other library community to be information literate.

In the universities and schools, the library staff, with the help of others, formulated curriculum, and commenced information literacy programmes systematically, in their respective libraries.

In this study the author has focused only on the University Information Literacy curriculum.

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Definition of terms

Information literacy is the ability to recognize the extent and nature of an information need, then to locate, evaluate, and effectively use the needed information. (Plattsburgh State Information and Computer Literacy Task Force, 2001)

Curriculum An undergraduate curriculum is a formal academic plan for the learning experiences of students in pursuit of a college degree. The term *curriculum*, broadly defined, includes goals for student learning (skills, knowledge and attitudes); content (the subject matter in which learning experiences are embedded); sequence (the order in which concepts are presented); learners; instructional methods and activities; instructional resources (materials and settings); evaluation (methods used to assess student learning as a result of these experiences); and adjustments to teaching and learning processes, based on experience and evaluation. Although the term *curriculum* is variably used, this definition is sufficiently inclusive and dynamic to account for the many innovations in the undergraduate curriculum that involve instructional methods, sequencing, and assessments as well as instructional goals and content, all of which have been implemented in order to improve learning. (Dezure, D & Lattuca, L.R, 2002)

Basic components of curriculum

It is very easy to understand the components of the Information Literacy Curriculum, by studying the basic components of the general structure of the curriculum.

The basic elements of the curriculum could be explained as follows:

Aim of the curriculum, Rationale, Goals and Objectives or the Learning Outcome, Audience and Pre-requisites, Subject Matter Instructional Plan, Materials, Plans for Assessment and Evaluation.

The above mentioned basic elements are inter-related within the curriculum. The lecturers and librarians are the key players in the curriculum; while subject content, teaching , learning, and assessment, are the necessary parts of the curriculum.



Figure 1. (Key elements and relationships in the curriculum.2009)

The above three steps are based on learning outcomes. Learning outcomes are influenced by the university regulations, students' competencies, lecturers' capabilities and available resources, job opportunities and so on. The above diagram reflects the different angles of learning outcomes as seen by the staff and students. Staff focus attention mainly on content and what should be taught, while students focus their attention on what should be leaned. Staff focus attention on learning interactions and how to promote learning, while students focus their attention on how to learn. In terms of assessment, staff focus their attention on how to measure learning, while students focus their attention on how to show their learning.

Information Literacy curriculum designers (Librarians) need to greatly focus their attention on these basic elements, as they are new to the field of Information Literacy, in the Sri Lankan context.

Information Literacy curriculum

Considering the basic curriculum elements specified under number 03, the Sri Lankan Universities have the autonomy to prepare their own information literacy curricula to suit the local requirements. American Library Association-AASL 'Position Paper on Information Literacy' has indicated the seven basic components of the Information Literacy Curriculum.

- "1. Defining the need for Information
 - 2. Initiating the search strategy
 - 3. Locating the resources
 - 4. Assessing and comprehending the information
 - 5. Intrpreting the information
 - 6 Communicating the information
 - 7 Evaluating the product and process"

(AASL, 2006)

The above seven components are again sub categorized into forty one steps. This can be treated as a acceptable foundation for the designers of the Sri Lankan

Information Literacy Curriculum to work on. At the same time University of Kent (2010) has elaborated core competencies of the Information Literacy Curriculum.

- "1. Identifying information needs
- 2. Identifying relevant resources
- 3. Searching for information efficiently
- 4. Evaluating information
- 5. Managing information
- 6. Using information"

These six core competencies may differ in their application, from department to department, depending on students' level of study. Once the Information Literacy curriculum content has been developed, the academic librarians or subject librarians have to work out the teaching methods or learning interactions. The delivery or teaching mode may be a lecture or classroom demonstration, hands on session, web based online package, handouts and leaflets or a combination of several methods.

National Institute of Library and Information Sciences (NILIS)

The National Institute of Library and Information Sciences (NILIS), affiliated to the University of Colombo, Sri Lanka was established in 1999. Since the inception of NILIS its main task has been the training of Teacher Librarians towards obtaining diplomas and postgraduate qualifications in order to develop the school library sector in Sri Lanka. In addition to this NILIS has initiated several educational programs to cater to the training of other library professionals too. Although NILIS was established in 1999, the Library and Information Science (LIS) courses commenced in 2002. At present NILIS conducts the following courses:

- M Phil / PhD in LIS
- Masters in Library and Information Sciences (MLS) (full time two year)
- Masters in Teacher Librarianship (MTL) (one year full time, two year part time)
- Postgraduate Diploma in Library & Information Sciences (PGLIS) (two year part time)
- Postgraduate Diploma in Teacher Librarianship (PGIL) (one year fulltime, two year part time)
- Diploma in Library & Information Management (DLIM) (3 year part time)
- Certificate in Public Librarianship (CPL) (six months part time)
- Certificate in School Librarianship (CSL) (six months part time)
- Short term training courses for LIS staff and other office staff.
NILIS has always given priority towards maintaining the quality and standard of the courses; and has made it a point to incorporate important subject areas into the curriculum, according to the needs of the times. E.g. Information Literacy has been incorporated into all its post-graduate courses.

"It is the responsibility of NILIS to promote resource based student centred learning and to promote competencies in learning to learn among its students. Accordingly NILIS incorporated Information Literacy in all its teacher Librarianship programmes" (Wijetunga, 2008).

NILIS information literacy curriculum

In 2004, with the intention of creating an information literate community in Sri Lanka; NILIS conducted a workshop on Information Literacy, in collaboration with IFLA/ALP.

"The Empowering 8 - Information Literacy Model" was formulated at this workshop, to be practiced in the Sri Lankan education system, with special reference to the general education curriculum.

The empowering 8 Model is the problem solving model in information based education. This model consists of 8 stages; namely- identify, explore, select, organize, create, present, assess and apply. The student who studies under this model acquires over one hundred competency skills.

The empowering 08 Model has basically introduced to the NILIS students, government schools and university students at different levels. As it has been mentioned earlier, the NILIS Information Literacy curriculum is based on the empowering 08 model. This curriculum was basically tested with the (2005-2007) postgraduate diploma in Teacher Librarianship (PGTL) students as a separate orientating program. The focus was on completing a merit based assignment at the end of 40 contact class room hours which spread across 09 days. It was a student centered, activity based, practical program, with the assessment of both process and content.

The Information Literacy curriculum was implemented by the NILIS team, which comprised, Director, Senior Lecturers and Asst. Librarian. The first day of the programme was carried out to cover the identify and explore stages. In addition to identify and explore stages, introduction to the NILIS library and its organizing structure were elaborated upon. The second day visit to National Library of Sri Lanka coverd the explore stage with the pre prepared activity sheets. Under the selected stage, students retrieved information through print and non print sources. On the following day students practiced to gain skills on evaluation of information making and paraphrasing and avoiding plagiarism. On the fourth day they practiced on how to use referencing styles, academic writing and presentation methods. Next five days were dedicated to the presentations, assessments and how to apply on how to apply the reflections of the workshop for future learning.

At the completion of the curriculum the students were expected to achieve the following learning outcomes.

Step	Empowering 8 Components	The student will be able to demonstrate an ability to: (Learning outcomes)
		• Define the topic/subject
14.655		Determine and understand the audience
		Choose the relevant format for the finished product
1	Identify	• Identify the key words
		Plan a search strategy
		 Identify different types of resources where information may be found
		• Locate resources appropriate to the chosen topic
2	Explore	• Find information appropriate to the chosen topic
		• Do interviews, field trips or other outside research
		Choose relevant information
3	Select	• Determine which sources are too easy, too hard, or
		just right
-		• Record relevant information through note making of
		making a visual organizer such as a chart, gruph, or
	an ang ang ang	Identify the stages in the process
		Collect appropriate citations
		Sort the information
4	Organize	Distinguish between fact, opinion, and fiction
	o i guinat	Check for bias in the sources
		Sequence the information in a logical order
		• Use visual organizers to compare or contrast
		information
		• Prepare information in their own words in a
5	Create	meaningful way
		Revise and edit, alone or with a peer
	a state of the second second	Finalize the bibliographic format
		Practice for presentation activity
6	Present	Share the information with an appropriate determat to
		• Display the information in an appropriate rotate
+	1	suit the audience

Table 1. Empowering 8 information literacy stages and learning outcomes

10/10	1	Set up and use equipment properly
		Accept feedback from other students
7	Assess	• Self assess one's performance in response
-	1.0000	teacher's assessment of the work
		Reflect on how well they have done
		• Determine if new skills were learned
		Consider what could be done better next time
		Review the feedback and assessment provided
8	Apply	• Use the feedback and assessment for the next learning activity / task
-		• Endeavour to use the knowledge gained in a variate
		of new situations
		• Determine in what other subjects these skills can
1		now be used
		Add product to a portfolio of productions

Evaluation of the NILIS information literacy curriculum

The NILIS I.L. curriculum was evaluated basically through students' performance and feedback. On each day during the orientation period the students were requested to write their feedback on the specified task, and to hand it over to the lecturer. Ninety nine percent of the students were satisfied with what they practiced on that particular day. For the given assignment under the Information Literacy curriculum, ninety five percent of students scored over seventy five percentage of marks. This is because the students were highly motivated by the new teaching learning environment, and they were given individual attention, as well as continuous and summative assessment by the staff.

NILIS Information Literacy curriculum basically covers what has framed by American Library Association as the seven components of the curriculum. Association of college and research libraries [ACRL] (2000) has presented five Information literacy competency standards for higher education and twenty two performance indicators with learning outcomes, in order to achieve the basic information literacy skills.

The five ALA competency standard are as follows

- The information literate student determines the nature and extent of the information needed.
- The information literate student accesses needed information effectively and efficiently.
- The information literate student evaluates information and its sources critically and incorporates selected information into his or her knowledge base and value system.

- The information literate student, individually or as a member of a group, uses information effectively to accomplish a specific purpose.
- The information literate student understands many of the economic, legal, and social issues surrounding the use of information and accesses and uses information ethically and legally.

The NILIS I. L. curriculum was introduced to the (2005/2007) PGTL students as the basic orientation programme. After that it was implemented for the next three consecutive PGTL and MTL batches as well. At present the information literacy skills programme is integrated with the main curriculum, as it is the best approach to cultivate information literacy skills among the students, with the literature support.

Conclusion

The students who followed the information literacy programme showed better performance in their academic activities, especially in independent learning and critical thinking. This is a good sign to introduce information literacy programmes to other universities as well, if they have not been implemented as yet. As the NILIS focus group was the teacher librarians of the PGTL course the outcomes were centered on school teaching and learning process. If the same learning outcomes specified under NILIS I.L. curriculum are to be applied to the universities, they will need to be more specific, depending on the mission and objectives of university education. In most countries the information literacy skills programmes are carried out via web based online tutorials and are integrated with the students' subject based curriculum. Therefore the Sri Lankan University librarians, Lecturing staff and administrative staff have to go hand in hand, in order to implement successful information literacy programmes to cater to the university student community, with special attention to their disciplines of study, stages of study and future requirements.

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Issues and Challenges in LIS Programmes in India: an analytical review

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Introduction

This topic has been chosen with a view to discuss on the issues and challenges in LIS programmes being offered by departments of library and information science in Indian Universities and colleges. During the last two decades the trends in the LIS profession are changing rapidly and there is also a need to revamp the educational program to manage the new challenges in the profession with the help of advanced level curriculum. Information and communication technology (ICT) has made a profound impact on the life and work of people. There is a shift from teaching to learning and from face to face learning to e-learning. Our curriculum has to be broadly interdisciplinary across knowledge management, information technology, information networks, open source software, web technology and einformation. There are many challenges before libraries and librarians i.e. the libraries must change from collection oriented institutions to service oriented organizations and librarians have to change from custodians of books and documents to information managers and disseminators. In this changing scenario, information technology is playing the most important role. For that there is a need to change in the syllabi of the LIS programs with comprises of three "Ts' formula i.e. Teaching, Technology and Team building.

LIS programs in South Asia

South Asia consists of seven countries, out of these seven India, Pakistan, Sri Lanka and Bangladesh has provision for LIS education. Other three countries, Nepal, Bhutan and Maldives depend on out side support for education and training. There are lot of variations between and within countries and institutions in south Asia. There are no uniform models. There are one year BLIS ad MLIS courses and there are two year integrated course also. And some universities and colleges are experimenting with the Choice Based Credit System (CBCS). The revolution in information and communication technology has considerably changed both the education of information professionals and information science. Several curricula in South Asian Universities particularly in India added many courses on use of ICT and are gradually moving from 'pure' library science to the hybrid field of information management, which draws its philosophy form both library science and information systems.

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National knowledge commission (NKC) of India has identified that libraries and Information Centers are important unit to promote knowledge. The working group on libraries (WGL) of the NKC has already made some recommendations on these lines.

(i) Identify, sponsor and conduct R&D programmes in the LIS field.

- (i) Develop techniques for database creation and retrieval in Indian languages.
- (iii) Formulate lists of subject headings for Indian subjects.
- (iv) Designs and develop Indian National digital libraries in various sectors, disciplines and languages.
- (v) Study information needs of different cultural, academic and professional groups.

New development in LIS field

The curriculum of LIS must be reviewed continuously; the trends in the profession are also reflected in it. The trends in the LIS from traditional practices in the profession shifted towards the digital library, including digitization, change in the practices due to application of information technology and knowledge management techniques etc. The impact of e-resources on libraries with the help of

e-publications, web 2.0 tools, libraries 2.0, internet and Intranet growth made the revolutionary changes in the profession. E-resources have become the order of the day. It has several features such as subject gateways which provide online resources on a particular theme or discipline. There has been a paradigm shift in the methodology of reading with the advent of e-resources. Users of higher educational institutions are increasingly looking for electronic information. For that there is a need to accommodate all these new issues in the syllabi of the LIS programs.

Curriculum development

LIS courses offered by Indian library schools in different Universities have become partially irrelevant since long. The debate about changing the LIS curricula has been going on for the last few years, but nothing concrete has yet been done at the national level, except for some cosmetic changes. The syllabus have more ICT courses like digital libraries, digital library and multimedia, web technology, web management, database technology, web page design, epublishing, expert systems, knowledge management, networking and consortium, telecommunication and data transmission, content management systems, network Besides, there is a need for interpersonal communication skills among the LIS professionals, it helps to interact more with the users and provide good service to them. In this context, personality development and communicative skills may be included in the LIS curriculum.

New challenges

Curricula remodeling is a process whereby the choices of designing a learning experience for students are made and then activated through a set of coordinated activities. Curriculum development for the professionals is a logical as well as practical process to reach the problem solving stages ultimately. Today, information professional is required to be information evaluator, instructor, service marketor, innovator, data miner, information aggregator, counselor, information consultant, effective communicator and knowledge manager. He is supposed to have workable knowledge of handing ICTs, web based library and information services, digitization of document and IPR issues. He is also supposed to train users in making effective use of networked electronic information services, organize library out reach services etc. With such countless responsibilities, only multi-skilled information professionals can survive and thrive in the emerging information era.

There is need to change the LIS education system in order to face the new developments in the profession, the following important points may be useful.

- (i) Practical orientation is an essential concept to be incorporated.
- (ii) The concept of creating, managing and maintaining databases are helpful in LIS students' current job.
- (iii) Model curriculum based on the cutting edge course contents and ICTs.
- (iv) Teaching and evaluation methods must internalize the spirit of the emerging mechanism.
- (v) Information litracy and knowledge management must be integrated in the LIS course and reflected in the nomenclature.
- (vi) Collaboration with the information brokers, data providers to provide trial run for digital resources and training to the students to develop the skills.

Change management

Libraries and information centers are intermediaries between information produces and consumers. Library and information professionals are basically facilitators for the professional and social goals by providing massive instant access to valuable knowledge and information in a cost effective manner. Dr.S.R. Ranganathen's laws are valid for all time, the only change needed is to replace the word 'books' in his laws with knowledge and information.

Library education in India has received not full attention, although libraries and dynamic people with the proper education to achieve their goals. Library science progress must conduct a real survey to determine the needs of the country's libraries and information centers, to determine the courses needed to staff such institutions. Therefore it is high time to make analysis of the changing context and fine-tune the LIS courses accordingly. We have no choice but to make the LIS course consistent with the job market.

Short comings

Only 50% of the LIS schools have changed their curriculum according to the new trends and development in the filed of LIS. We analyze carefully the courses being offered by us, we find 50% credit is given to the traditional and conservative. Only 40 per cent of the areas are related to IT components. Faculty, curriculum, student intake, learning support, teaching methods are critical components for the success of any LIS programme. But LIS programmes in majority of the developing countries like India are suffering from acute shortage of faculty, getting interested students, the internet connectivity is still a luxury for many of the departments. There was not enough hardware and software on the one hand and also web based resources and services on the other. For that, there would be librarians future is in bleak. In many Universities either in regular steam or distance mode, the students have obtained degrees with limited theoretical knowledge.

Student intake and infrastructure in LIS

Library science courses are never the first option of the majority of students. Most of the students turn to library science after having failed to secure admission to other prestigious course of study. Thus, it is a career of the mediocre at best. During the last two decades there has been a mushrooming of LIS courses available through correspondence course or by the more respectable nomenclature of distance education. Most of such schools are ill-equipped for LIS education, thought they have proved money minting machines for the parent Universities due to higher enrolment. Proliferation of library education is at present about 125 institutions, mostly Universities and colleges. Of these, the MLIS course is being offered by102 Universities, 85 Universities have Ph.D Research facilities, and D. Litt only at two places (BHU and Utkal). It has been observed that more and more institutions and libraries are opening library science courses, without having even the minimum facilities for teaching, even with poor libraries ad funds, they have started MLIS programmes.

The late C.G. Visuvanathan (1990) a veteran librarian, aptly wrote "At present library schools and professional training centers in India are yet to receive a kind word from any section of the public. Even the academic world still does not believe that there can be everything like education for librarianship and curriculum of studies for library science. But at the same time everyone wants library service to be first rate".

Current status of research in LIS

Research in library and information science briefly means the collection and analysis of original data on a problem of librarianship done within the library schools according to scientific and scholarly standards (Kumar, P.S.G., 1999).

Though India has contributed a lot to the field of library and information science but still we are lagging behind as for as library science research is concerned. This is mainly due to

- Traditional method of teaching and lack of research orientation in most of the Indian Universities.
- Lack of research experience by the faculty members and the librarians.
- Inadequate strength of the teaching faculty in many Universities and thereby over burdening them with classroom teaching.
- Inadequate financial support
- Lack of good library facilities and services
- Absence of identification of research areas (Kumar, P.S.G., 1987) Till the year 2008 there are 802 doctoral degrees awarded by the different Universities in India (Chandrasekara and Ramesh, 2009). For this there is an urgent need to deal with the problem areas and thereby reflects the past successes of LIS research and re-establishes the importance of LIS research for professional practice.

Suggestions

- An accreditation agency for LIS courses in our country at the National level is urgently required on the pattern of All India Council for Technical Education (AICTE) for Technical Education and Medical Council of India (MCI) for Medical Education. The absence of such a national body has been the main cause of inadequacy of quality education in LIS in India.
- For effective teaching and learning we will have to follow the technology based learning and teaching (TLT) and Computer Assisted learning (CAL) is the need of the hour.
- There is also a need to formulate a standard syllabus for all the Universities to follow the concept of standardization, which may be helpful to migrate students and professionals any where for seeking the employment (eg) UGC model curriculum.
- To establish a computer laboratory in the department and train the students for competitive world.
- Start Data banks, information analysis centers, translation centers etc.
- There is need of conducting few weeks specialised courses to update the professional skills (eg) digitization, automation, web design, web based information searching web page development and application of web 2.0 in LIS etc.

Conclusion

In a networked society based on information economy, the LIS profession has to change its outlook and methods learn new tools and retain the dwindling clientele encroached upon the IT people and allied professions. Librarians are not mere information retriever and providers; they are guides and torch bearers. There is a need of the qualified professional as many changes in the profession during the past few years and even in the future the profession will look into the different challenges. The curriculum of LIS education in India definitely needs to be based on the traditional library practices as well as modern trends for library functions and services by adapting the ICT application. Thus the LIS curriculum development today is a very difficult task in order to keep in mind the changing paradigms of library and information resource centers in the recent past and started to convert the traditional library into digital library by using different library management software.

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PART VI - SESSION IV

Repository Initiatives, Access to Literature and Scientometric Analysis

Session Chair – Mr. Upali Amarasiri

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Challenges in Open Access Initiatives: an evaluate study on the institutional repositories in Indian context

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Abstract

The academic and R&D libraries across the globe are striving very hard to harness technology for archiving scholarly literature, which is fast proliferating and scattered. Building open access digital libraries or institutional repositories is getting attention from all the developed and developing countries due to its multifaceted features and the opportunities it extends to the information providers and information seekers. In India, already lots of open access initiatives have taken place and still there is a large opportunity as there are many R&D institutions and universities which produce research work, could potentially convert their data into online material in an open-access environment. This paper attempts to highlight the Open Access movement and gives an overview of the numerous OA initiatives and exemplary efforts that have taken place in India.

Keywords: Open Access Initiatives; Institutional Repository; Digital Library; Evaluation

Introduction

The researchers in developing countries who have been facing problems of poor access to scholarly literature in respective fields, promotion of open access initiatives has been the right solution. Many higher education and R&D institutions in India have made a significant contribution to the transmission of knowledge and research outputs in all fields and disciplines through institutional repositories. Rajasekhar (2003) described the key challenges facing Indian research as the need to improve local access to global research and global access to local research. The libraries of Indian universities and institutes of higher learning also play a vital role in acquiring and disseminating information for academic and research activities.

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Institutional repositories in these are a way of making educational and research data and information available to faculty, researchers, students, and others at the institutions and worldwide.

Institutional repository

An Institutional Repository is the digital repository of intellectual output of any institution or organisation. In an institutional repository (IR) scholarly or intellectual work is made accessible and preserved for posterity. Libraries are performing leading role in shaping institutional digital repositories across the world for the benefit of the researchers.

Objectives & methodology of the study

Institutional Repositories in India have been identified and studied under different criteria like subject category, up-to-date, software etc. This study is intended to evaluate the repositories observing the printed and online resources. The findings have provided an understanding of the underlying issues involved in the operation of these repositories within the Indian environment and the barriers to their implementation.

Benefits of having IR

Institutional Repository for any institution or organization is required because of certain changes in the society. There is a significant increase of the scholarly literature out of research and there is a sea change taking place in terms of technology. Having an IR helps to provide access to increasing demand to knowledge from anywhere at anytime. The IR in an R&D organisation may help to develop a national research repository infrastructure which may stimulate development of services that draw on research information made available through the repository infrastructure. Studies have shown that articles freely available on the Internet are cited more often and faculty members can self-publish their preprints immediately, with the possibility of receiving immediate feedback. An institutional repository can contain all of the scholarly work by one faculty member, including material such as preprints, post-prints, presentations, and classroom materials (dependent on copyright restrictions). Instead of being scattered about in different databases, servers, or computer hard drives, this material can be browsed easily in one place by the user. Depositing an item into an institutional repository means that it stays in one place and maintains the same URL. The scholarly material produced by the university is available in one place, reflecting the intellectual achievements of the institution, and serving as a valuable resource. Material in an institutional repository can be found through a search engine. Person needs to pay to access this material, and there are no subscription fees. Our repository contains material that is in different formats such as audio files video files files video files, animations, and data sets. Overall benefit will be complete customization of policies and user interface. There is no need of maintaining server or back up.

IRs in Indian context

Nowadays, it has become a trend of creating institutional repositories in the universities and R&D organisations all over the world. Many of the institutions have their repositories which they have built on various open source software. Following are some of the examples in India (Table 1).

Institution	Software	Subject Coverage
Central Drug Research Institute	DSpace	Drug related literature
Indian Institute of Astrophysics,	DSpace	Astronomy and
Fangalore		astrophysics
Indian Institute of Information	EPrints	Science & Technology
Technology		
Indian Institute of Management -	EPrints &	Management disciplines
Kozhikhode	DSpace	and IT
Indian Institute of Science,	EPrints	Science and technology
Bangalore		
Indian Institute of Technology-	DSpace	Engineering sciences
Delhi		
Indian Institute of Technology,	Greenston	Engineering and basic
Mumbai	e	sciences.
Indian National Science Academy	DSpace	Members publications
(INSA)	1	The Original T
INFLIBNET - Inter University	DSpace	Library Science and II
Centre		DDC Classification
Librarians' Digital Library, DRTC,	DSpace	Lib. & Ini. Science
Bangalore		
National Aerospace Laboratory	EPrints	Aerospace sciences
National Chemical Laboratory, Pur	e DSpace	Chemistry and biological
	1	sciences
National Institute of Technology -	DSpace	Engg. physical and
Rourkela	1	IOT for development
One World South Asia	EPrints	ICT IOI acveropment
OpenMed (Indian Medlars Centre,	EPrints	Health Sciences
NIC)		MESH Classifier
Raijy Gandhi Centre for	EPrints	Biotecimoros
Biotechnology		Thusics and astronomy
Raman Research Institute,	DSpace	Physics and
Bangalore	1	Multidisciplinary
University of Delhi	EPrints	Multidisciplinary
University of Hyderabad	DSpace	Multilingual
		Multidisciplinary, Acces
Vidyanidhi - National e-theses	DSpace	by registration.
repository		

Table 1: List of IRs

The table is not a complete list of institutional repositories in India. As seen in the table universities and research institutes or organisationation have been taking part in creating these repositories.

Findings

Institutional repositories in India have introduced many innovative features. Some elite educational and research institutes such as IITs, IIMs, Indian Statistical Institute, DRTC, CSIR Laboratories, etc. have already started their initiatives in building institutional repositories including a few Universities. Institutional repositories of University of Hyderabad, University of Delhi, Mysore University, DRTC, the DSpace@INFLIBNET, ePrints@IIT-Delhi National Aerospace Laboratories Institutional Repository, ePrints@IISc, Vidyanidhi, etc., are some of the best examples of institutional repositories that has some unique features. University Grants Commission already developed a policy document on building University level Institutional Digital Repository in India. Almost all of these initiatives are experimental in nature except a few.

Many of the institutions have their repositories which they have built on various open source software. The term "open source" refers to software that is free and that includes the original source code used to create it so that users can modify it to make it work better for them. There are no contractual restrictions on how the software is used. There is no charge for the software itself. The major cost is local development. A large number of Digital Library software is used for creating institutional repositories in India. But DSpace, Green Stone Digital Library (GSDL) and ePrint are the three main software, that have been used in creating the institutional repositories. The use of ePrints and DSpace software for E-print repositories and of DSpace for ETDs is common. Many of the institutional repositories are not being updated regularly. It has been observed that institutions which are busy with creating institutional repositories include research institutions, informatics centres, universities and technical institutes. They are all degree granting institutions, except a few. Funding does not appear to be a limitation for these institutional repositories. If needed, special requests are made for project funding. R&D institutions and universities accept research publications from constituent departments. The most commonly accepted document formats are MSWord, PDF and LaTeX. Both current and retrospective material is uploaded after checking for publishers' copyright policies. In some cases access is only available on the intranet or by registration. Copyright ownership is a subject that is vigorously being discussed. However, most repositories are providing consent forms for authors. Institutions have their own structural formats in designing and customising the institutional repositories.

Suggestions

- Institutional support is very much necessary for the installation and maintenance of institutional repositories. Support from the top management helps institutional repositories will achieve its goal.
- There should be training opportunities for the staff on open access and institutional repositories. In India training programmes are organised by various organisations which may be attended by the principal investigators carrying out the project. The staff of intuitional repositories should have library science background with additional training in programming ar computer applications. They should held leadership positions in the organization and had responsibility for institutional repositories among the duties. The staff should attend or participate training workshops in CNU EPrints or DSpace or other required softwares. DELNET, DRTC, NON and INFLIBNET are main centres for providing training.
- Staff should show awareness of global issues concerning open access.
- Required infrastructural facilities for installing repositories, with deficater servers and broadband Internet access.
- In order to promote the open access movement agenda, best practices shruld be shared with other Indian libraries.
- Authors should be showed the value and importance of depositing their literary resources. They may be convinced of their wide applicability and the increased visibility the intuitional repositories provide.

Conclusion

Open access initiatives in India are still in primitive stage. Like other developing countries, India has also taken important steps to initiate open access with a view to promote creation of institutional repositories for visibility of research outputs and access to scholarly resources. Many universities in India are at present lack of having required infrastructure for establishing institutional repositories. A university-based institutional repository is a set of services that a university offers to the members for the management and dissemination of digital materials created by the institution. Open access has its distinct advantages and disadvantages but library and information professionals have to accept the challenges for creating institutional repositories which would definitely provide more visibility among the readers and authors by widening the geographical distribution.

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Scientometric Analysis of Literature Output on carica papaya (Papaya): a case study

Ramasamy, R.U.¹

Abstract

This study aims to focus on growth pattern as well as overall trend in literature output on papaya during 2006-2009. Secondary data collection from a set of retrieved bibliographic records from the literature output in the field of papaya from the sources of Medline was studied. This paper also highlights the need of more research in papaya related research.

Keywords: Content analysis, literature analysis,

Introduction

The scientrometric analysis gained momentum in the recent years due to proliferation in science literature. Scientrometric is the measurement that helps in identifying the progress of a particular science subject, this paper highlights the growth pattern of literature on papaya over a period of four years 2006 - 2009 to testify the current developments in the subject and to focus on its structure. Studies like this will be helpful to understand the complex nature of the research in a particular subject and to provide adequate facilities and guidance in which direction the future research has to be carried out.

The Papaya

The papaya has been long in the world ever since the recorded history of mankind. The papaya was thought to have originated from Mexico or Central America. Since the time of the rise of the Spanish conquest, the papaya has been introduced to Europe. Seeds were brought by ships into the other areas of the world, including India, and the other parts of Southeast Asia. Since the time of the introduction of the papaya to the common world, it has then gained a lot names: "pawpaw" from Europe, "Fruta Bomba" in Cuba, "Papaye" in France and "Papalee" in Tamil Nadu. Papaya (*Carica papaya*)_is a tropical fruit having commercial importance because of its high nutritive and medicinal value.

Objectives

> To identify the authorship pattern of the literature

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- > To study the structures such as journal articles, abstracts, reviews and letters and other types of the literature
- letters and other types of and their countries of origin where the literature
 To identify the journals and their countries of origin where the literature
- on papaya has been published > To study the language wise distribution of the literature

Research methodology

The MEDLARS database for 2006 -2009 was analyzed for this study. About 232 The MEDLARS database for molecular form MEDLARS for the study. Though the records on papaya were downloaded form MEDLARS for the study. Though the database comprises about 10 fields, the following fields were downloaded for each record on papaya literature: title, author, published pages, address of the author, date of publication, publishing language, type of publications, year of publication, published countries and country of publication.

Data analysis and interpretations

No.	Author	2006	2007	2008	2009	Total
1.	Single	4	1	3	3	11
2.	Double	5	7	7	3	22
3.	Three	8	12	12	9	41
4.	Four	7	8	13	13	41
5.	Five	10	8	7	7	32
6.	Six	5	8	7	13	33
7.	Seven	4	8	2	5	19
8.	Eight	0	2	5	3	10
9.	Nine	3	1	1	1	6
10.	Ten	2	1	0	0	3
11.	More than Ten	3	5	2	4	14
Tota		51	61	59	61	232

Table 1: Type of authorship

Table-1 shows the nature and quantum of authorship. Articles contributed by three and four authors formed 41 records followed by Six and Five authors forming 33 and 32 records followed by two authors group and seven authors group each forming a quantum of 22 and 19 records respectively. Contributions by more than ten, single and eight authors as a group of contributors by 14, 11 and 10 records and nine ten authors group contribute 6 and 3 records.

The ranked order of authorship was as follows:

41
41
33
32
22
10
19
14
11
10
6
3

Table 1.1 - Ranked authorship

Table 2: Authors e-mail identification

No.	Year	E-mail id	E-mail id		
		Available	Not available	-	
1.	2006	22	29	51	
2.	2007	25	36	61	
3.	2008	28	31	59	
4.	2009	24	37	61	
Total		99	133	232	

Of the 232 records, there are 99 authors given by their own e-mail identifications, the remaining 133 authors address only given.

Table 3: Frequency distribution of contribution countries of affiliation authors

No.	Author Address	Total		S.No	Author Address	Total
	(country)				(country)	
1	United-States	61		15	Germany	5
2	India	24		16	Iran	5
3	Brazil	20		17	Spain	5
4	China	13		18	Cuba	4
5	Belgium	10		19	Israel	4
6	Italy	10	 -	20	Mexico	3
7	Taiwan	9		21	Kenya	2
8	Austrolio	8	-	22	Korea	2
0	Topon	0	-	23	Pakistan	2
9	Japan	7	+	24	Portugal	2
10	England			25	Scotland	2
11	Nigeria	1		25	Philippines	1
12	Canada	6	-	20	Theiland	1
13	Malaysia	6	-	27	Thananu	232
14	France	5			10181	1

United States ranked first with 61 publications followed by India with 24 records. Brazil and China had an output of 20 and 13 records while Belgium and Italy had an equal 10 records each. Taiwan had 9 records. Australia, Japan and England, Nigeria and Canada, Malaysia had equal output of 8 and 7 and 6 records. France, Germany, Iran and Spain had an equal 5 records. Cuba and Israel contributed had each 4 records. Mexico had 3 records only. Kenya, Korea, Pakistan, Portugal and Scotland had an equal output of 2 records. Philippines and Thailand have contributed equally each one record.

The United States and India have proved their medical literature output supremacy though the subject of study Papaya is more skin to tropical and subtropical countries.

Ma	PT	2006	2007	2008	2009	Total
1	Journal Article	47	54	50	61	212
1.	Reviews	3	2	5	0	10
2.	Abstracts	0	2	2	0	4
J. A	Reports	1	2	1	0	4
5	Letter	0	1	0	0	1
6	News	0	0	1	0	1
	Total	51	61	59	61	232

Table 4: Forms of papaya literature

Of the 232 records 212 were in the form of Journal articles followed by 10 reviews item. Next came Abstracts, reports and Letters, News each item numbering 4 and 1.

No	Language	2006	2007	2008	2009	Total
1.	English	51	58	56	61	226
2.	Chinese	0	0	1	0	1
3.	Italian	0	1	0	0	1
4.	Porthkis	0	2	1	0	3
5.	Spanish	0	0	1	0	1
	Total	51	61	59	61	232

Table 5: Frequency distribution - language wise

Of the 232 records, the language of communication of a major portion numbering 226 records were found to be in English, ranking first among the world renowned 8 global languages. Contributions in Porthikis language numbered 2 in 3 records surprised the investigator and Chinese, Italian and Spanish contribute in each 1 record. Some of the developing countries have to open their eyes to this pathetic position of not found apaya literature not only in their native language but also not representing the international sources.

No	Year	Records	
1	2006	51	Pages
2	2007	61	443
2	2008	59	441
1	2009	61	445
Total		232	4/9
Total			1808

Table 6: Quantum of literature output - printed page wise

Based on the total number of articles, the concerned total numbers of pages have been taken into account to work out the average number of pages per article. There was 479 article pages published in the year 2009, in the years 2008, 2007 and 2006 based on 445, 441 and 443 article pages may published. Pl. see Annexed Table 7.

Contributors in 141 standard journals as covered by MEDLARS published a total of 232 records. A happy note is that an Indian Journal found its way amidst the list of journals having published articles on papaya. But the pleasure is short lived if one noticed that the articles published in Indian Journals were mostly foreign.

Conclusion

Study also found that according to major health database MEDLARS, over a period of four years only 232 records on papaya were published worldwide. This warrants more development or research in this field.

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Annexure

	Name of the Journals			
No	I umpl of agricultural and food chemistry	16		
1	Journal of agriculture	10		
2	Journal of cuirology	8		
3	Archives of vitology	6		
4	Biological Chemistry	6		
5	Phytochemistry	4		
6	Molecular generics and generation	4		
7	Plant cell reports	4		
8	Plant physiology	4		
9	Plant physiology and choose and physiology	3		
10	Asian journal of androidy	3		
11	Biochimica et olophysica detti	3		
12	communications in agriculturer and approved by			
12	Sciences	3		
13	Journal of medicinal food	3		
14	Neotropical entomology	3		
15	Parasitology	3		
17	Structural biology and crystallization communications	3		
18	The New Zealand medical journal	3		
19	Journal of agricultural and food chemistry	16		
20	Veterinary parasitology	3		
21	Virus genes	3		
22	Annals of the New York Academy of Sciences	2		
23	BioFactors (Oxford, England)	2		
24	Biotechnology letters	2		
25	Food and chemical toxicology	2		
26	Genetica	2		
27	International journal of biological macromolecules	2		
28	International journal of food sciences and nutrition	2		
29	Journal of food protection	2		
30	Journal of insect science	2		
31	Journal of the Food Hygienic Society of Japan	2		
32	Methods in molecular biology	2		
33	Phytotherapy research	2		
34	Planta	2		
35	The FEBS journal	2		
36	genes	1		
37	Acta crystallographica	1		
38	Acta genetica Sinica	1		
	Advances in virus research	1		

Table 7: Frequency distribution of journals

40	Analytical biochemistry	
41	Annals of botany	
42	Annual review of phytopathology	1
43	Archivos latinoamericanos de nutricion	1
44	Asia Pacific journal of clinical nutrition	
45	Biochemical and biophysical research come	
46	Biochemical genetics	
47	Biochemistry	
48	BioDrugs	
49	Bioorganic & medicinal chemistry	1
50	Biotechnology advances	1
51	Biotechnology and bioengineering	1
52	Biotechnology annual review	1
53	BMC bioinformatics	1
54	BMC genomics	1
55	Brazilian journal of biology	1
56	Canadian journal of microbiology	1
57	Cell research	1
58	Cellular and molecular life sciences	1
59	Chembiochem : a European journal of chemical biology	1
60	Collegium antropologicum	
61	Colloids and surfaces. B, Biointerfaces	
62	Current opinion in genetics & development	
63	Cytogenetic and genome research	1
64	Dermatology online journal	1
65	Ecological applications Journal of economic entomology	1
66	Environmental biosafety research	1
67	Environmental entomology	1
68	Ethiopian medical journal	1
69	European journal of clinical nutrition	1
70	Experimental & applied acarology	1
	FEMS yeast research	1
	Food additives and contaminants	1
	Forum of nutrition	1
74	Free radical biology & medicine	1
-13	Genetics and molecular research	1
70	Genome biology	1
70	Genome research	1
70	Genomics	
80	Hereditas	
81	Hypertension research	1
82	Indian journal of experimental biology	1
83	Indian journal of pharmaceutical sciences	
84	Inflammation & allergy drug targets	1
85	Intiammo pharmacology	1
86	International journal of cancer	1
87	International journal of dermatology	1
	international journal of phytotherapy and	

8	Labutopharmacology	
	Jaurnal of AOAC International	1
88	Journal of applied toxicology Journal of environmental	1
89	Journal of upper	
	Sciences (china)	1
90	Journal of chromatography	1
91	Journal of computational biology	1
92	Journal of economic entomology	1
93	Journal of environmental radioactivity	1
94	Journal of ethno pharmacology	1
95	Journal of ethnobiology and ethnomedicine	1
96	Journal of experimental botany	1
97	Journal of fluorescence	1
98	Journal of food science	1
99	Journal of restroenterology and hepatology	1
100	Journal of bazardous materials	1
101	Journal of helminthology	1
102	Journal of medicinal chemistry	1
103	Journal of melecular biology	1
104	Journal of hiological methods	1
105	Journal of vilological methods	1
100	La Chilica terapeutica	1
107	Letters in applied interobiology	1
108	Memorias de Institute Oswaldo Cruz	1
110	Minerua ginecologica	1
110	Molecular biotechnology	1
112	Molecular plant pathology	1
112	Molecular plant-microbe interactions Journal of economic	1
115	entomology	
114	Mycological research	1
115	Nature	1
116	Nature higtechnology	1 1
117	Neuroscience	1
118	Nigerian journal of physiological sciences	1
119	Nucleic acids research	1
120	Oecologia	1
121	Pakistan journal of hiological sciences: PIRS	1
122	Pakistan journal of biological sciences Haraditas	1
123	Pakistan journal of pharmaceutical sciences	1
124	Parasitology research	1
12	5 Physiologia plantarum	1
12	6 Phytochemical analysis	1
12	7 Plant foods for human nutrition (Dordrecht Netherlands)	1
12	8 Rejuvenation research	1
12	9 Reproduction in domestic animals	1
13	0 Reproductive toxicology (Elmsford, N.V.)	1
	Science (New York, N.Y.)	1
1 1:	Seminars in cell & developmental biology	+
12 12 12 12 12 12 13 13 13	 6 Phytochemical analysis 7 Plant foods for human nutrition (Dordrecht, Netherlands) 8 Rejuvenation research 9 Reproduction in domestic animals 0 Reproductive toxicology (Elmsford, N.Y.) 1 Science (New York, N.Y.) 2 Seminars in cell & developmental biology 	1 1 1 1 1 1 1 1 1

133	The Korean journal of physiology & pharmacology	
134	The Plant journal for cell and molecular biology	1
135	The Science of the total environment	1
136	The West Indian medical journal	1
137	Theoretical and applied genetics	1
138	Tropical animal health and production	1
139	Vaccine	1
140	Virology	1
141	Wiener klinische Wochenschrift	1
Total		

Security of National Heritage, Old Archival Documents and Role of University Libraries

Khare, Vijay¹

Abstract

Old archival documents, old records, traditional literatures are backbone of the country. Country may become global power with the weapons of mass destruction or military capability. But there is need to preserve our archival documents and literature by University library. Today every where terrorist are identifying the crisis zone where they can easily targeted to national heritage of the country or libraries where old records and archival documents available in university library. In giant Buddha's have been destroyed by the use of Afghanistan mortars, dynamite, tanks, anti-aircraft weapons and rockets. Now they are nothing but piles of sandstone rubble and clay plaster The Taliban destroyed also other Buddhist images in Afghanistan, such as ancient statues and relief carvings. The Buddhist, the world community and UNESCO failed to convince the Taliban's to leave such artifacts and everybody expressed horror at the Buddha's' destruction. In future there is possibility by the terrorist threat to University library too. This paper deal with how non-military threats are emerging in South Asia? How South Asian countries are facing the asymmetric war in the name of culture, identity, and religion? This paper also argued about how University library can protect old records, archival documents through modern technology? Whether security challenge can be managed by University libraries? These arguments will critical review while writing the full paper.

Key Words: Military Capability, Terrorism, Non-Military, culture, identity, and religion

Introduction

Post cold war era has witnessed changing trends in security. The traditional concept of security is now being replaced by nontraditional security which stresses upon broader view entailing vast concerns of social, political, economic and environmental issues leading to the comprehensive security which is becoming a more popular version of security. This shift in security paradigm is being felt in South Asia also, which comprises of world's 1.5 population, which remains a deprived and a poor region because of the huge defense spending.

¹Dr. Vijay Khare, Associate Professor, University of Pune, India <u>wkhare@unipune.ernet.in</u> But now there is realization that the region needs to divert its resources from military towards economic and social uplift of the people, thus the stress from high politics to low politics. In recent times with fast pace of globalization and complicated issues being faced by states, the understanding of security has become crucial for betterment of humanity. New and complex concerns have replaced traditional issues. The same goes for security which is undergoing changes, new concept of security is becoming more acceptable to that of traditional military security, which only stresses on military and defense aspects. But now states so as to secure security need to pay more attention to the present day problems being faced. These contemporary concerns include terrorism, poverty, population growth, health, and environment, cultural, religious and ethnic antagonism. In coming years the above mentioned issues will be posing more problems, thus making states more insecure. If we take the most general meaning of security, it implies being secured from threats. Then how much are the states nowadays secure from the number of threats being faced other than military ones?

The concept of security according to Jackson and Sorensen, (1999), is ambiguous and elastic in meanings. Generally security is taken as to be free from threats. It is a complicated and a contested concept. It is iridescent and manifold if seen in different perspectives or from different angles. Broadly speaking the concept of security can be divided into two categories: traditional concept of security that emphasizes the importance of state security, and non- traditional or broadened concept of security that seeks social security. Before we go into the graphic detail about what constitutes traditional concept of security and non-traditional concept of security and their implication in the South Asian region. let us briefly look into the theoretical evolution of these two concepts. The traditional military oriented security was seen in world politics in 1940s till the end of cold war, by the then prevalent Realist scholars, who emphasized on attainment of military power. The Realists were the traditionalists who dominated the international relations in 1940s. They believed in 'power politics' with states as the main actors, giving stress on attainment of more and more military power. Throughout the cold war the traditional concept of security remained dominant paradigm as both policy makers and experts strongly adhered to the conviction that international relations are essentially conflict prone and that war is the only solution, a bitter reality that cannot be overlooked or denied.(Basrur, 2001). State security remained primary concern and objective of the followers of traditional concept of security. For them state is the pre-eminent actor in world politics and all other actors such as individuals, international organizations, NGOs etc are either secondary or unimportant. From the Realist perspective, states face security dilemma and national security is achieved through the military means.

(Woosang Kim and In-Taek Hyun, 2004) The core values of traditional concept of security are national security and state survival; foreign policy of any state is formulated around these two basic priorities or values. A growing number of contemporary writers have sought for an 'expanded conception' of security, including a wide range of considerations. (Kreiger 1993). After the end of cold war, the concept of security became a hot subject of debate, dissection and discourse not only among the scholars but also among the strategists, policy makers and economists. The traditional concept that had emphasized the "centrality of state as pivot of political life" (Hough, 2004), or state-centric security throughout the cold war was questioned and post cold war realities rendered it somewhat implausible and untenable. Baylis and Smith 2001). The fast pace of globalization and immense interaction amongst states demonstrated that security stakes of states are interlinked and interdependent, thus requiring role and contribution of all, leading to collective action for satisfaction of human security. However post cold war era and 9/11 incident brought abut shifts in understanding of security. A number of non orthodox approaches have emerged viewing security differently. (Steve Smith, 2005).

Now the concept of security is not confined only to military threats. Non-military threats have gained much more importance and attention, thus leading to emergence of the concept of 'soft' security rather than the 'hard' security which prevailed during the cold war era. Non-military issues such as economy, trade, environment and terrorism etc. have become part of 'low' politics or 'soft' security which is the current broader view, leaving behind the only military issues captioned as 'high' politics or 'hard' security, coming under the narrow view in security studies. In early 1990's a new approach emerged as the 'Copenhagen School' led by Barry Buzan, which believed in a profound widening of security to non-military issues and also made an attempt to include sub- state groups into security analysis. This school has established itself in a decade. Further beyond the above mentioned school is the 'deepening' approach led by Pluralists and Social Constructionists; these embrace the idea of human security arguing that object of security should be individual people and not the state or sub state groups. In 1990s United Nations Development Program (UNDP) further developed this concept of human security. 'The concept of security must change from an exclusive stress on national security to much greater stress on people's security, from security through armament to security through human development from territorial to food, employment and environmental security. 'The broad goal of security is to enable people to live without fears for their survival, well-being and freedom. Security thus, is not only the absence of war and conflict, but also the control of infections, diseases, preventing poverty, eliminating illiteracy and the protecting sudden reversals that threaten the quality of their daily lives (Sakiko, Fukuda-Parr, Ellen, Seidensticker, Lincoln Chen, (2003). Nowadays governments are giving more stress on issues such as drugs, health and global warming, which fall under the 'comprehensive security'. In the late 1950s Prime Minister of Japan Ohira for the first time used the term comprehensive security. The concept was based on the idea that security was comprehensive in nature and should not be restricted only to military issues. (Banerjee, 1999). It however did not exclude military capabilities. This approach became quite popular. Later on in 1990s the concept of cooperative security emerged, it carried a few of elements of all others and included

cooperative efforts for achieving security. These efforts would be towards issues of common concern. This has become a attractive security concept as it works around the welfare of all parties going for cooperative measures.

There is growing awareness among the people especially of the developed world that international boundaries are a weak barrier to the problems that afflict the poorest parts of the world. No doubt concept of security is undergoing changes. Military oriented security is being replaced by comprehensive and cooperative security, which gives a broader view of security. Today in the name of globalization and revolution in science and technology South Asian region emerging asymmetric warfare in the name of culture, identity, and religion. The concept of asymmetric warfare in South Asia is not new to the common people. Today in the modern age there will be no possibility of direct war with among South Asian countries. The threat will be emerge from non-state actor like terrorism and there will be disaster of national heritage, archival documents, and old records.

The increasing occurrence of natural and human-caused disasters, including armed conflicts, is causing extensive loss of life, damage to property, and harm to the environment. Natural disasters like floods, earthquakes, hurricanes, landslides, volcanic eruptions and drought also cause tremendous devastation. There is an increase in the frequency of these disasters and the damage caused by them. Libraries and archival collections are not unaffected by their evastating impact. The countries are gradually shifting from disaster response to a more proactive approach to disaster management. A proactive stance to reduce the toll of disasters in the region requires a more comprehensive approach that encompasses both predisaster risk reduction and post-disaster recovery. And this is evident in case of documentary and cultural heritage also. The term disaster may be defined as any occurrence that threatens human safety and/ or causes damage to library facilities and materials. Disasters can be natural or man-made depending on their origin. Disasters related to extreme weather events (floods, cyclones, tornadoes, blizzards, droughts) occur regularly. Disasters cannot be predicted and there is little that can be done to prevent these disasters as most of the disasters occur suddenly and perhaps unexpectedly. Disasters can be minor or major, and range from roof and plumbing leaks which can be repaired by in-house personnel; to broken water mains, power disruptions which require large effort and money for repairs; to major catastrophes, such as earthquakes, floods, tornadoes etc. in which all the organisation's operations are disrupted, all utilities are out of order, and destruction occurs on a massive scale. These disasters include fires, floods, earthquakes, hurricanes, tornadoes, and workplace violence. Any of these disasters, large or small, natural or man-made, has the potential to harm the library's collections, the building, the library employees, and the library users. In addition to potential damage, the disaster may disrupt the services that the library offers to its users. As Henson has put it "A library disaster is a threat that might cause harm to the library collection, building, staff, or users, or it is an unscheduled disruption of normal library services". Having a disaster response

plan in place before a disaster strikes can help the library minimize the impact of a disaster and restore collections and services in an optimum time. Let us first understand the various kinds of disasters will occur by the non-state actors in South Asia.

Fire

Fire-related disasters by terrorist are often even more destructive than those caused by water alone. Fires produce enormous amounts of heat, smoke, and toxic gases, and the process of Extinguishing the fire sometimes causes as much or more damage than the fire itself. Causes of fire include natural phenomena such as lightning and earthquakes, as well as old or defective wiring or heating equipment, accumulations of combustible materials, and arson. Fire in library damages the old historical documents and records which are the parts of national heritage. University of Pune has collected 666 Marathi Manuscripts, 2376 Sanskrit 704 other manuscripts collected by various sources. 693 and Hindi (www.unipune.ernet.in). Above mention old manuscripts is not the property of Jaykar library only it is national property. Hence it is need to protect the threat from non-state actor.

Water

Violent floods and storms that cause wind or water-related damage are typical natural disasters for libraries and information centres. The floods that may result from such events can be devastating. Besides natural occurrences such as hurricanes, tornadoes, and floods, water damage can come from malfunctioning plumbing, sprinkler, and air-conditioning systems. Floods, rain, sprinkler pipe breaks and other disasters can leave paper records, microfilm and other library materials soaked with water. Once water has entered the collection areas, a danger of a mold problem arises, especially if the humidity is high.

Earthquake

Earthquake is a natural catastrophe that may effect the collections in a library or museum. During an earthquake walls, ceilings, and shelves may collapse causing structural damage. The library buildings may be destroyed and the collections buried underneath covered in debris and mud. The damage to archival collections due to earthquake could be irreplaceable.

Theft and Vandalism

Library collections are also effected by theft and vandalism. Other man-made disasters are war, terrorism, rioting. All these lead to the destruction of collections of libraries and museums. During war a number of factors which affect libraries apart from the shelling are phenomena like the movement of people from the

affected areas. Recent conflicts in Africa, in the former Yugoslavia, Iraq and Afghanistan have shown the risks to the archival heritage from the devastating effects of armed conflict.

Chemicals

plaster dust, sawdust, and other particulates filter into the atmosphere and then into the collections. They abrade the paper and act as a catalyst for chemical damage. Various chemicals present in the atmosphere, are spread from one area to another by air-handling systems, normal air currents, and traffic. When structural damage occurs, the person in charge of the over-all building maintenance should assess the structural damage and determine when it is safe to enter the building. After this preliminary assessment, damage to the affected materials needs to be assessed. In addition to the "traditional" disasters caused by wind, water, and fire, libraries and archives should be well prepared to face threats of terrorism in all forms. Bombings, and other terrorist acts are also capable of causing mass destruction. Disaster planning for these types of extreme events presents an enormous challenge for librarians.

Disasters due to armed conflicts

Armed conflicts in the form of wars between nations, civil wars and terrorism pose grave threats to libraries and other cultural institutions. The various cultural institutions represent a nation's identity, culture and common history. During conflicts and wars large scale destruction of library collections and other cultural institutions takes place. This leads to permanent destruction of the precious documentary and cultural heritage. It is not possible to mention the list of all the libraries and archival collections which have been damaged due to war, bombardment and other acts of terrorism. During the two world wars considerable damage was caused to library and archival collections. One example is of the Library of the University of Louvian, Belgium which was destroyed because of German invasion during World War I. The entire collection of about 300,000 books was destroyed. After the war the library was rebuild with the aid of funds and books received from many countries. However, the library was again destroyed in World War II. Similar, damage was caused in other countries like, France, Italy, Germany, Poland, United Kingdom, Czechoslovakia, Netherlands, former Soviet Union where a large number of libraries, archives and museums were destroyed due to fires caused by bombings, air raids, artillery fire during war and invasion. In the 1990s events in Cambodia, the Gulf war and the war in former Yugoslavia, caused untold destruction to libraries and archives. During the 1992-96 conflict in Bosnia-Herzegovina also there was widespread destruction of cultural and religious heritage. Shelling of the National and University Library of Bosnia and Herzegovina led to a fire that burned down the building and destroyed most of the collections. A large number of books in the library had been salvaged from collections in libraries that were damaged during World War II. Large scale destruction was caused to archives, libraries and other cultural institutions during

the war in Iraq. Because of armed conflict there was the looting and burning of Iraq's National Library and National Archives and the destruction of most of the contents of the National Museum. An assessment of the damage to libraries and archives in Iraq was made. The different libraries situated in different cities and the collections originally held by them and the number of collections destroyed or burnt.

Basra University Central library

The initial assessment just after the war was based on different inputs- like reports by researchers who spent time working in Iraqi libraries (e.g. verbal report by Dr Donny George, Director of Research, Iraqi museum and written report by Edouard Méténier, a French researcher who spent six months working in Iraqi libraries), information posted on various subgroups (H-ISLAM, H-LEVANT, etc.), etc. Later on UNESCO sent its expert teams to Iraq. It was found that few libraries. like Library of the Iraqi Museum which had one of the finest collections on history and archaeology of the Middle East, had most of their collections evacuated before the war started - completely protected. Preliminary investigations by the historians revealed that between 30%-60% of the National Library's collection is safe and held in three separate locations. However, In Baghdad, Mosul, Basra and other cities almost all university libraries were looted and/or burned, even the ones left untouched have little in them. In Kurdistan, there are hardly any books or journals after 1980. Most of the major collections at Baghdad's Academy of Sciences library - which held 65,000 volumes, 8000 manuscripts, and microforms - were reported as missing. (http://ifla.org)

Recent disasters due to natural calamities

Natural calamities like floods, tornados, hurricanes and earthquakes etc. are some of the natural disasters that cause enormous devastation of library and archival collections. A deadly Earthquake struck Gujarat in January 26, 2001. The earthquake flattened hundreds of towns and villages in Gujarat. More than 20,000 people were killed, 166,000 injured and 1.1 million homes destroyed. The damage to historic buildings, and sites of cultural heritage significance was both severe, and widespread. Many libraries and their collections were damaged in the devastating earthquake. Invaluable cultural heritage was damaged and destroyed by the floods in Europe in August, 2002. Cultural monuments and institutions such as museums, galleries, theatres, libraries, and churches buildings in Austria, Germany, Hungary, Slovakia and the Czech Republic were affected. Archives and library collections in the Czech Republic suffered extensive damage due to floods though libraries and archives in the German cities of Dresden, Dessau and Wittenberg are suffered less damage. Affected public libraries in Czech Republic reported an initial loss of approximately 280,000 volumes. The floods caused extensive damage to the archives in Prague, especially to the National Technical Museum, Military Historical Archive, the Academy of Science, the Municipal Library of Prague, the Czech Philharmonic Orchestra, and the Czech Statistics Office. Many precious books and manuscripts at Charles University were damaged. About one million volumes from various library collections, among them several early prints and printed books up to the 1800, and some rare collections have been damaged. Museums and archives also suffered considerable loss.

The International Committee of the Blue Shield (ICBS)

The ICBS (International Committee of the Blue Shield) was created in 1996 to collect and disseminate information and to co-ordinate action in emergency situations. It is constituted by the following non-governmental organisations, ICA (International Council on Archives), ICOM (International Council of Museums), ICOMOS (International Council on Monuments and Sites), IFLA (International Federation of Library Associations and Institutions). Its mission is to protect and safeguard cultural heritage according to The Hague Convention of 1954 for the Protection of Cultural Property in the Event of Armed Conflict. The International Committee of the Blue Shield (ICBS) covers museums and archives, historic sites and libraries. It brings together the knowledge, experience and international networks of the four expert organizations dealing with cultural heritage: an unrivalled body of expertise which is now available to advise and assist in responding to events such as war in former Yugoslavia and hurricane damage in Central America. ICBS is international, independent and professional.

Hazards to library materials and control measures and role of university library

Role of University Library is not only for information and knowledge provider it is also important how to protect historical documents, cultural heritage, and archival documents. Following are few control measures

Salvage of paper

One should be extremely careful when handling wet materials as they are rendered very fragile, and can be easily damaged during packing and transport. Files must be packed carefully in proper order, and sufficient documentary information should be maintained. If some time is available, different materials should be packed separately. The materials can be packed in the following categories: by media, moldy from uncontaminated and wet from partially wet and damp Coated papers will stick together unless frozen or dried immediately. Keep them wet in cold water until they can be air dried or packed for freezing. Maps and plans should not be blotted, especially if the inks are water soluble and quickly frozen or air dried.

Salvage of books

Separate soaked books from books with light water damage. If any books are Separate soaked books from occurs the not remove them until they can be dealt with actually submerged in water, do not remove them until they can be dealt with actually submerged in water, do not than in water. Unless it is possible to work immediately. Mold grows faster in air than in water. Unless it is possible to work within the damage area, wet books must be moved to a space where they can be within the damage area, wet coold rules wet books or remove book covers. If the treated. Do not attempt to open or close wet books or remove book covers. If the treated. Do not attempt to open of the washed before freezing. Closed books should water is very dirty, books should be washed then dabbed (not a the books should be washed in tubs of cold running water and then dabbed (not rubbed) with a sponge to remove the mud. Then they should be packed spine down or lying flat in single layers, in a milk crate or cardboard carton (pack only 1 layer deep, to prevent crushing of bindings). Books with coated papers stick together unless frozen or dried promptly. Therefore, they should be kept wet in cold water until they can be air dried or frozen. Books that have been soaked need to be individually wrapped in wax paper or freezer paper and immediately frozen. Any commercial freezer is adequate. After the books have been frozen they will need to be dried at freezing temperatures in a vacuum chamber. Following treatment in the vacuum chamber the books will have a humidity of about two percent. At this point the books will be very fragile and will need to be stored undisturbed for two to four weeks until they have regained their normal humidity.

Salvage procedures for electronic resources

Hard drives are housed in cabinets that are less susceptible to water and soot contamination. However, they may be affected by heat. If due to fire or water damage the hard disk is not accessible, it should be removed and placed in another compatible unit. If this does not work it may need to be opened and cleaned and therefore, in order to recover data from such a hard drive, any firm or expert specialising in data recovery may be contacted. If optical discs like CDs etc. have been exposed to dirty water they should be rinsed in clean water and dried with a soft, lint-free cloth. During the recovery care must be taken to avoid physical damage due poor handling.

Different recovery methods

Some of the recovery methods that can be employed for the salvage of water damaged materials are:

Air drying

Air drying is the oldest and most commonly used method for treatment of wet books and records. It is an inexpensive method of drying as no special equipment is required in this method.
Freeze drying

This method is used for treating books and records that are only damp or moderately wet. By freeze drying water-damaged library and archival materials are stabilised by freezing and storing at low temperatures, before being dried.

Vacuum freeze drying

In this process frozen records are dried in a vacuum chamber at temperatures below 0° C. The process is suitable for large number of wet books and records as well as for water-soluble inks and for coated paper.

Vacuum thermal drying

This process is generally used for slightly to extensively wet materials. In this process materials are placed in a vacuum drying chamber, the vacuum is drawn, heat is introduced, and the materials are dried at temperatures above 0° C. As it is a process that changes a liquid to a vapour, it results in a much greater risk of expansion, distortion, sticking, and staining. It often produces extreme distortion in books and papers, and causes adhesion or blocking of coated paper and photographic materials. Water-soluble inks or pigments are also affected. However, the process is suitable for un-coated papers, vacuum thermal drying is often cited as a cost-effective option for materials of low intrinsic value.

Dehumidification

Dehumidification is also known as desiccant-drying. In this process large, commercial dehumidifiers are used for drying the records which are still on their shelves with all the collections, equipment, and furnishings left in place. Temperature and humidity are carefully controlled. Dried (dehumidified) air is introduced at very low relative humidity, often below 15%, and circulated with fans in and around the drying chamber.

Conclusion

Old archival documents, old records, traditional literatures are backbone of the country. Country may become global power with the weapons of mass destruction or military capability. But there is need to preserve our culture, identity and religious values through archival documents and literature by University library. Today every where terrorist are identifying the crisis zone where they can easily targeted to national heritage of the country or libraries where old records and archival documents available in university library. There is need to develop mechanism to protect internal and external attacks on Library and Museum where old traditional and cultural records are kept. Hence it is necessary University Library should develop awareness among global citizens.

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Self Archiving Policies of Library and Information Science Journals

Hirwade, Mangala Anil¹

Abstract

Open access is the movement gaining momentum throughout the globe. OA Journals and OA Archives are the two major vehicles of Open Access. To have greater access and visibility to the scholarly publication, one solution is Self Archiving. It is achieved in three ways; by putting the published article on personal websites, by archiving it on Institutional repository or by archiving it in open archives. In this paper, a study has been carried out to trace the self archiving policies of Library and Information Science (LIS) journals. Total 67 LIS journals indexed by Social Science Citation Index were selected and Sherpa Romeo database was taken to trace the copyright policies of the publishers of these journals. The study reveals that maximum publishers are under Green category and allows self archiving.

Keywords: Open Access, Self Archiving, E-repositories, Sherpa Romeo database

Introduction

Open access is the movement gaining momentum throughout the globe. Openaccess (OA) literature is digital, online, free of charge, and free of most copyright and licensing restrictions. OA Journals and OA Archives are the two major vehicles of Open Access.

When an author writes an article, he pursues three goals viz; to publish it in a refereed journal to get recognition, to get read by others and have more citations and greater impact. In order to be used and built upon, an article must first be accessed. A published article is accessible only to those researchers who happen to be at institutions that can afford to subscribe to the particular journal in which it was published. To have greater access and visibility, one solution is Self Archiving. It is achieved in three ways; by putting the article on personal websites, by archiving it on Institutional repository or by archiving it in open archives.

Methodology

The present study has been carried out to trace the self archiving policies of Library and Information Science (LIS) journals.

¹Dr. Mangala Anil Hirwadc, Assistant Professor, RTM Nagpur University, Nagpur <u>hmangala@rediffmail.com</u> Total 67 LIS journals indexed by Social Science Citation Index were selected and Sherpa Romeo database was used to trace the copyright policies of the publishers of these journals. The study reveals that maximum journals are under Green category and allows self archiving.

Literature Review

Defining self archiving

According to Wiki pedia. Self-archiving involves depositing a free copy of a digital document on the World Wide Web in order to provide open access to it. (Wikipedia) Usually peer-reviewed research journals, conference articles and theses are deposited by the author himself/herself or any other with the consent of copyright holder in an institutional repository or any other open archive for the purpose of maximizing its accessibility, usage and citation impact. Self-archiving is a good method to promote open-access.

The purpose of self-archiving is to make the full text of the peer-reviewed research output of scholars scientists and their institutions visible, accessible, harvestable, scarebable and useable by any potential user with access to the Internet. The purpose of thus maximizing public access to research findings online is that this in turn maximizes its visibility, usage and impact -- which in turn not only maximizes its benefits to researchers and their institution in terms of prestige, prices, salary, and grant revenue but it also maximizes its benefits to research itself and hence to the society that funds it) in terms of research dissemination, application and growth, hence research productivity and progress.

Historical Perspectives

The practice of self-archiving has its roots in the field of computer sciences, where researchers were depositing results in ftp archives some decades ago and, later, on websites. A preprint culture — that is, the distribution of drafts of research articles before they have been peer reviewed to colleagues around the world, to establish ownership of the piece of research, to move the subject along, and to invite critical commentary before final revision and submission of the articles to learned journals had been in place for many years in print form in the computer science community, and as the digital age arrived the practice simply migrated from paper to electronic form.

There is another mechanism for creating a subject-based archive and that is for authors to deposit their work directly into a centralized repository. In 1991, the first centralized archive, for the high-energy physics community called arXiv. (Amla, 2005)

The principles behind OA archiving were agreed at a meeting of OA proponents held in Berlin in October 2003, and outlined in a document since known as the

Berlin Declaration. In March 2005, the movement took another important step forward when many of the same proponents, meeting in Southampton University in the United Kingdom, reached consensus on a resolution stating that institutions who agreed to sign up to the Berlin declaration should "implement a policy to require their researchers to deposit a copy of all their published articles in an open access repository." (Dickson David)

E-repositories can be subject-based or geographical based and can be national level or global level depending on their objectives, theme, and coverage of resources. Most of e-repositories facilitate with bounder less access and seamless searching and unlimited downloading. Electronic repositories are built up by profit organizations too in the aim of profiting from information. The emergence of open-access concept brought academic community to seek for free search and free download of research and scholarly articles, and therefore, free archiving was the most concern. The practice of self archiving was proliferated as the online submission facilities were developed and variety of subject level and institutional level OA collections appeared immensely. Directory of Open Access Repositories (DOAR) (http://www.opendoar.org/) presently lists 1650 OA repositories throughout the world and 56 from LIS.

Self-archiving is a matter of attitudes, awareness and scholarship. Authors who practice self archiving have to concentrate on copyright issues. Mostly authors deposit their pre-print articles before publishing in peer-reviewed conventional journals. That will be the authors final version of the article and in some cases authors should have to sign copyright agreements with the publisher or funding agency. Therefore, most of post-print articles require copyright holders consent prior to deposit them in an open access archive. Many digital archives tag the article as pre-print, Post print or peer- reviewed. (Arachchige, 2009)

Sherpa Romeo Database

There may be a confusion in the mind of the author while self archiving the published article, regarding copyright violation. Sherpa-Romeo database gives a solution to this problem. It has studied the Copyright Policies of the Journal Publishers worldwide and categorized the publishers into 4 categories viz. Green, Blue, Yellow and White. Green publishers allow archiving of pre-print, post print and publisher's version/pdf, Blue publishers allow post print and publisher's version/pdf, Yellow allow archiving of pre-print only and White Publishers do not support self archiving. (SHERPA: Publisher copyright policies and self-archiving.)

Social Science Citation Index

Social Sciences Citation Index (SSCI) is an interdisciplinary citation index product of Thomson Reuters' Healthcare and Science division. It was developed

by the Institute for Scientific Information (ISI) from the Science Citation Index. It is made available online through the Web of Science service for a fee. It database product provides information to identify the articles cited most frequently and by what publisher and author. (Social Science Citation Index)

Observations

The study reveals following observations

Subject wise analysis of SSCI is reported in Table No. 1 (Annexure). It is observed that this citation database covers 3048 of the world's leading journals of social sciences across 55 disciplines. There are 67 journals belonging to Library and Information Science (LIS).

The Sherpa Romeo database was studied in order to trace the archiving policies of LIS journals. The publishers' category was also observed. The details are shown in Table No. 2 (Annexure). Here, X, Y and C alphabets are used which means

X- Author cannot archive publisher's version/PDF

Y- author can archive pre-print (i.e. pre-refereeing)

C- Subject to Restrictions, author can archive post-print

Table No. 3 shows details of the archiving policies and Sherpa Romeo category of the publishers of LIS journals under study. It is observed that 37.31% journals fall under Green category and allows self archiving. 25.37% journals are from Yellow category and allow archiving of pre-print only. 7.46% journals fall under Blue category i.e. allow post print and publisher's version/pdf. Only one journal, i.e. Journal of Global Information Management does not allow archiving and fall under White Category. The archiving policy details of 19 (28.36%) are not included by Sherpa Romeo database, but the observations show that maximum of these 19 journals are open access.

No.	Sherpa Romeo category	No. of Journals	Percentage
1	Green	25	37.31
2	Yellow	17	25.37
3	Blue	5	7.40
4	White	1	1.49
5	Not included by Sherpa Romeo database	19	28.30
		67	100

Table	3:	Analysis	of	archiving	policies	of	LIS journais
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Conclusion

Self Archiving is a concept which gives greater accessibility and visibility to the Self Archiving is a constructive works published in the works which are not covered scholarly and peer reviewed works published in the works which are not covered scholarly and peer to the scholarly and peer to the works which are not covered under open access. Self archiving improves the citation index of the individual under open account of the individual work. Sherpa Romeo database helps the researcher tremendously before the self work. Snerpa to research. Maximum LIS journals indexed by Social Science archiving of and allowing self archiving. The importance of self archiving must be recognized by LIS professionals also as it is the need of the hour.

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ANNEXURE

- abite	1. Subject wise analysis of journals	s in SSCI (as on 15	April 2010)
No.	Subject	No.of Journals	Percentage
	Anthropology	65	2.13
2	Area Studies	40	1.31
3	Business	79	2.59
4	Business, Finance	62	2.03
5	Communication	56	1.84
6	Criminology & Penology	38	1.25
7	Demography	22	0.72
8	Economics	221	7.25
9	Education & Educational Descent	131	4.29
10	Education Special	34	1.12
	Environmental Stati	60	2.26
12	Ergonomics	12	0.42
	Bononnics	1.2	

Table 1. Cash !. 11 4010)

13 Ethnic Studies 13 0.43 14 Ethnic Studies 32 1.05 15 Family Studies 32 1.01 16 Geography 24 0.79 17 Gerontology 24 0.79 18 Health Policy & Services 48 1.57 19 History 22 0.72 20 History & Philosophy of Science 32 1.05 21 History & Philosophy of Science 32 1.05 21 History & Philosophy of Science 67 2.20 24 Information Science & Library Science 67 2.20 25 International Relations 61 2.00 26 Law 110 3.61 27 Linguistics 106 3.48 28 Management 111 3.64 29 Nursing 70 2.30 30 Planning & Development 45 1.48 31 Political Science<			33	1.00
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	48	Social Sciences Interdisciplinary	69	2.26

No.	Subject	No.of Journals	Percentage
49	Social Sciences, Mathematical Methods	39	1.28
50	Social Work	32	1.05
51	Sociology	115	3.77
52	Substance Abuse	24	0.79
53	Transportation	18	0.59
54	Urban Studies	35	1.15
55	Women's Studies	29	0.95
	Total	3048	100

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No.	Journal Tirk	ean sixhirr pro-print	nichtes post petur	ana munit hat	Pinen (
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-	ASIST MODOLTSON South	Not includes	d py Sherba lisu	jut 1	
	ASLE Proventing	Y	Y	X	1 files
3 4	Canadian Journal of Information and Library Sciences-Revice Canadicano Des Sciences De L Information Et De Bibliotheconomie	Y	X	Med Version	1.000
5	College & Research Libraries	Y	Y	Her Yearns	(Alleli)
6	E-content	Not included	1 by Sherps R.o.	14.11	
7	Electronic Library	Y	Y	X	Crest
8	Ethics and Information Technology	Y	Y	x	Grom
9	Government Information Quarterly	С	Y	x	1000
10	Health Information and Libraries Journal	Y	С	x	1 5. 19
11	Information & Management	С	Y	X	1 your
12	Information Development	Y	C	X	1 5 1 22
13	Information Processing & Management	С	Y	x	(see
14	Information Research-An International Electronic Journal	Not included	l by Sherpa Ron	160	
15	Information Society	Y	C	X	1 ALANT
16	Information Systems Journal	Y	C	x	felieve
17	Information Systems Research	Y	X	Y	(man
18	Information Technology & Management	Y	Y	x	1 MARA
19	Information Technology and Libraries	Y	Y	Not Known	(JERAA
20	Interlending & Document Supply	Y	Y	x	I person
21	International Journal of Computer-Supported Collaborative Learning	Not included	l by Sherpa Ron	u:C()	
22	International Journal of Geographical Information Science	Y	C	x	Y attern
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	to ismuoral journal of	C		21	

Table 2: Archiving policies of L18 four nals

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24	Journal of Academic		and the second second		Dide
342	Librarianship	V	С	X	V.II
25	Journal of Computer-				rellow
	Mediated Communication	V	v	v	
26	Journal of Documentation	Y	1 V	A Not K	Green
27	Journal of Global	С	A	Not Known	White
41	Information Management				
28	Journal of Health	Y	C	X	Yellow
28	Communication				
	Lournal of Information	Not included	l by Sherpa Ror	neo	
29	Saimee				
	Science	Y	C	X	Vellow
30	Journal of Information				1 CHOW
	Technology	C	V	x	Car
31	Journal of Informetrics	V	v	x	Gleen
32	Journal of Knowledge	I	-	A	Green
	Management		0	v	
33	Journal of Librarianship and	Y	C	А	Yellow
Production in	Information Science				
34	Journal of Management	Not included	d by Sherpa Ror	neo	
	Information Systems				
35	Journal of Scholarly	Y	X	Not Known	Yellow
al au su	Publishing	2			
36	Journal of the American	С	Y	X	Green
50	Medical Informatics			Contrast Lands and	
	Association	1. 2		232. ABR 233	
27	Journal of the American	v	C	Y	Vellow
51	Society for Information	-	C	~	1 CHOW
	Science and Technology				
29	Journal of the Association	Not include	d hu Shama Bar		
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39	Journal of the Medical	A	X	Y	Blue
	Library Association				
40	Knowledge Organization				
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41	Law Library Journal	Not include	d by Sherpa Ron	meo	
42	Learned Publishing	Not	Y	X	Blue
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43	Library & Information	C	Y	X	Green
Section Section	Science Research				
44	Library and Information	C	Y	X	Green
-	Science				
45	Library Collections	С	V	X	Green
	Acquisitions & Technical			1	
	Services	14.2			
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47	Library Journal	Notinglada	d by Change D	<u> </u>	Green
48	Library Quarterly	Not include	d by Snerpa Roi	meo	Vallow
49	Library Resources &	<u> </u>	C	С	Yenow
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51	Libri	- Hot menude	d by Sherpa Ko		
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54	Online Information Review Online Information Review	Not included by Sherpa Romeo				
56	Academy Academy Brogram-Electronic Library	Not included	1 by Sherpa Roi	meo		
57	and Information Systems Reference & User Services	Y	Y	Not known	Green	
58	Quarterly	Not include	d by Sherpa Ron	meo	a classic	
59	Research Evaluation Restaurator-International	Not included by Sherpa Romeo				
ov	Journal For The Preservation of Library and					
	Archival Water	Not include	d by Sherpa Roi	meo		
61	Scientist	Y	Y	X	Green	
62	Scientometrics	C	Y	X	Green	
63	Serials Review Social Science Computer	Y	C	X	Yellow	
65	Review Social Science Information	Not included by Sherpa Romeo				
05	Sur Les Sciences Sociales	6	V	X	Green	
66	Telecommunications Policy	U	V	x	Blue	
67	Zeitschrift Fur	INO1	1	-		
07	Bibliothekswesen Und	Known				
	Bibliographie					

Design and Development of Digital Repository Using DSpace in Arrupe Library, St. Joseph's College (Autonomous), Tiruchirappalli

Dorairajan, M.1

Developments in the Information and Communication Technology have been made a sea change in the teaching learning and research process of Higher Educational Institutions particularly in Science and Technology Institutions. Open access movement is gaining momentum in academic and research institutions, though there is a mixed response in usage and sustainability in the web environment. Institutional repositories are independent initiatives for collaborative sharing of various institutions as single group using open source software such as GSDL, DSpace, Eprints, Fedora etc. Institutional Repositories that capture data, knowledge pertinent to an individual organization/institution in terms of scholarly publications, lectures, documentaries, objects, designs, images and audios that are archived digitally with taxonomies and meta tags. This enables the internal human resources to access and publish their intellectual creations over web for the benefit of each other.

Need for the Study

Due to the global access initiatives and right to information concepts are making awareness of educational institutions to go for institutional repositories. In enables the librarians and libraries to take part or hold the responsibility in contributing to the design and development of the institutional / digital repositories. It is the need of the hour not only identifying the methods and materials and procedures of setting up the digital libraries but also to evaluate the requirements and prospects of these among the user fraternity. This study aims at designing and developing the institutional repositories using Dspace digital Library Software.

Institutional Repositories

An institutional repository (IR) is a digital archive of an institution's intellectual output created by the faculty, research staff and students of the institution and accessible to end users both within and outside the institution. In real sense, it is a network accessible database with a set if services to capture, store, index, preserve and redistribute an institution's scholarly output in digital formats.

Institutions and libraries around the world use the institutional repositories in the following say:

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- Scholarly Communication Þ
- Storing learning materials and courseware >
- Electronic publishing >
- Managing collections of research documents . >
 - Preserving digital materials for the long term >
 - Adding to the Institution's prestige by showcasing its academic research > \mathbf{i}
 - Institutional leadership role for the Library
 - Knowledge Management \geq
 - Encouraging open access to scholarly research \mathbf{i}
 - Housing digitized collections. \triangleright

D-Space : Open Source Digital Library Software

Digital Libraries can be initiated with the help of Software. Cost of the commercial software are not affordable by the librarians of academic institutions in the developing countries like India. In this situation, the emergence of open source software was the breakthrough for the libraries to initiate their collection building of digital resources. Among the various open source digital library software available at free of cost, D-space developed in 2002 by the MIT Libraries and Hewlett pakard Labs is the most popular one across the world. Even though, the software is developed for the use of institutional repositories, the libraries are using it for the purpose of design and developing it for digital library. It captures, stores, indexes, preserves and redistributes an organizations research material formats. DSpace supports institutional repositories and electronic records management. DSpace is being popularly used worldwide to meet many digital archiving needs.

Dspace, are described here in order to see its uniqueness in the selection, In March 2000, Hewlett-Packard Company (HP) awarded \$1.8 million to the MIT Libraries for an 18-month collaboration to build DSpace, a dynamic repository for the intellectual output in digital formats of multi-disciplinary research organizations. HP Labs and MIT Libraries released the system worldwide on November 4, 2002, under the terms of the BSD open source license, one month after its introduction as a new service of the MIT Libraries. As an open source system, DSpace is now freely available to other institutions to run as-is, or to modify and extend as they require to meet local needs. From the outset, HP and MIT designed the system to be run by institutions other than MIT, and to support federation among its adopters, in both the technical and the social sense. Regarding Dsapce, it is seen as a powerful software for building a repository by its features of Metadata Representation (we can add or remove metadata), User friendly Interfaces, simplest Workflow, well featured Technology platform, and well Organized System Architecture. Moreover, Dspace is an open source technology platform which can be customized or extended for its capabilities and is a service model for open access and a digital archiving for perpetual access. And the Collections of the Dspace Repository are searchable and retrievable by the Web. Usually the potential users of an Institutional Repositories in digital environment are countless

The DSpace system provides a way to manage these research materials and The DSpace system professionally maintained repository to give them The DSpace system provides a way to maintained repository to give them greater publications in a professionally maintained as just we need for Arrupe Lit publications in a professionally international spectral, to give them greater publications in a professionally over time as just we need for Arrupe Library, visibility and accessibility over on building an institutional repository for visibility and accessibility over time us just not not for Arrupe Library, visibility and accessibility over time us just not not for Arrupe Library, St.Joseph's College. The project on building an institutional repository for the St.Joseph's College is an attempt to preserve and discout St. Joseph's College. The project on a strengt to preserve and disseminate Arrupe Library of St. Joseph's College is an attempt to preserve and disseminate Arrupe Library of St. Joseph's Conlege from various time for achieving a unified different collections available as bulk from various time for achieving a unified way of presentation and searching the digital collection.

Building of Digital Repository at Arrupe Library: the planning

The planning and building of digital library collections through Dspace is made in

this study. Arrupe Library of St. Joseph's College planned to build its Institutional repository as one of the digital library initiative.

- The library organized a one day seminar on "Digital Library" on 15th .
- OPAC (Online Public Access Catalogue) of the library was launched as .
- WebOPAC on 7th August 2006. The new building was constructed for the library (Arrupe Library) and
- The new ounding that comber 2008. While shifting the documents from inaugurated on 12th December 2008. the old library, it was decided to keep the rare books collection of the library was identified (around 5000 volumes of books) and placed in a separate room for digitization in future.
 - The library decided to build an digital repository aiming to create a permanent record of the institution's output in digital format and to make
 - ultimately for globally and openly accessible.

The different types of digital materials available in the college were identified as

follows:

1. Semester Question Papers

- 2. M.Phil/Ph.D Thesis
- 3. Newspaper Clippings
- 4. Retell College Journal
- Josephite College Annual Magazine
- 6. Annual Report of the College 5.
- INDEP and Other programmes of the college for You Tube OPAC on Net : WEBOpac of the Arrupe Library Conference and Seminar Proceedings of various departments 7.
- 8. 9.

With the tangible repository at hand, the library approached the faculty members, and research scholars to contribute their e-contents like M.Phil full text then the bibliographic description of his/her work will be made available for open access. It was planned to allow faculty members to submit their documents and they will sign a permission agreement for copyright.

- It was decided to collect the semester question papers in e-format from the Controller's Office to have it as one of the prominent collection.
- It was planned to undertake retrospective work to include documents previously published such as annual report, college magazines, journals etc.
- It was decided to do pilot project on Institutional repository. One of the MLIS students from Bharathidasan University was assigned the project work on Institutional repository of Arrupe Library with Greenstone Digital Library software. After consultation with the experts, it is finalized to build the digital repository of the College with DSpace due to the constraints and weakness of Greenstone Digital Library Software.
- The proposals were finalized to submit before the library committee. The Man, Machine and Money involved for this project is to be analysed and studied before launching the project.

Conclusion

Digital libraries and building up of digital resources are not beyond the reach of librarians. The present proposal is aimed to explore the possibility and feasibility of using open source software as well the application of latest information technologies. The success of the projects will be depending upon the support of the people involved in this.

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PART VII - SESSION V

Library Automation Networks and Consortia

Session Chair – Prof. Srinivasa Ragavan

Head, Department of Library & Information Science Librarian, Bharathidasan University

Design and Development of Virtual Reference Portal at Bharathidasan University Library **University Library**

Balasubramani, R.¹, Surulinathi, T.M.² and Ragavan, S. Srinivasa³

Abstract

This paper emphasizes the significance, elements and functionality of virtual reference portals, the role of reference librarian as identifier, selector, evaluator, organizer and disseminator of information on the web. The Bharathidasan University Virtual Reference portal offers the user to search a variety of sources simultaneously, integrating results from online chatting, Institutional Repository, subscribed database, local databases and bibliographical descriptions of digitized material. This portal also enables the user to access Bharathidasan University Vice Chancellor's Speeches, University Events, Lectures and other Academic Programs both Audio and Video and also allows them to review their request on-line from any system that are connected to the campus network (Intranet).

Keywords: Virtual Reference Portal, Online Chatting, Institutional Repository, Dspace, Greenstone, Web OPAC

Introduction

A library portal serves as an integrated interface to a wide variety of digital resources and web-based library services. Web portals are also important tools for users to access and utilize library and information services over a network. An informative home page provides the users helpful information about the library, its collection, and services. In addition, library portals also host links to important internet resources useful for the parent organization.

A good well designed and developed library web site is not only an excellent media for publicizing the library functions, activities, programs, resources and services but also to help the users on all significant information that are to be brought to their notice so that they must know in developing and using their

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library when ever they need to their specific interest. Strauss defined "a portal is a special kind of gateway to Web resources and a hub is the one from where users can locate all the web content they commonly need" (Strauss, 2003). Jackson states that "portals gather a variety of useful information resources into a single, one stop-web page that allows users to customize their information sources by selecting and viewing information they find personally useful" (Jackson, 2002). Luther further argues that there is flexibility in how libraries can design the initial search screen, either a single search box or list of databases grouped into subject (Luther, 2003).

In other words, the design and implementation of a local portal depends upon the needs of the individual institutions. Local portals will allow tailored access to a selection of resources that are important to a particular institution and their users. Besides, the portal also allow to integrate with other locally licensed data sets and local products, abstracts and indexing and citation databases, the OPAC, and even collections of electronic journals (Webb, 1998).

Objectives

The following objectives are identified for the purpose of the present study:

- To Design and develop Virtual Reference Portal at Bharathidasan University Library
- To provide retrieval facility for timely access to current reference resources available round the clock on all days. To incorporate web technologies and Digital Library techniques in design and delivering of information products
- To provide access facility for the Reference Resources to remote users
- To bringing together Library Patrons and Virtual Reference Services.
- To provide web based information services to different user communities of the University
- To enhance the web presence and usage of Library resources

Methodology

Developing a Portal for Virtual Reference Services is an information analysis and consolidation work. The major steps which have to be followed for designing a Portal are as following:

- Planning of Designing a Portal.
- Determining templates and content terms for proper navigation
- Identification of Online Reference Resources in Internet using various search engines.
- Selection of information sources by Faculty in Department of Library and Information Science.
- Evaluation of the resources to be organized for relevance and credibility

- Categorization and Organization of knowledge based Information .
- Finally presentation of Resources i.e. Portal designed with the help of

Bharathidasan University Virtual Reference Portal is an Online Reference Library providing access to a variety of Web based resources available on Internet and Intranet. These resources are selected and evaluated by the Faculty, Department of Library and Information Science. It provides a way of organizing information from a variety of sources including databases and human resources.

Reference Services Offered through Bharathidasan University Virtual

Home page is the first page of the BDU Virtual reference portal (Fig. 1). Using the home page the library users can access all resources from anywhere. There were many reference resources and reference services that make our users to know about but home page alone is not Suffice to highlight and the resources. In addition to the regular navigation and links, we have created a few features on our home page that allow us to promote new or existing reference resources and services.



Figure 1

The links provided in the top line are Home, Digital Resources, FAQ, Reference Services, New Arrivals, News Clippings Online DDS, Web OPAC, Institutional Repository, Think Tank,. In the middle, Web OPAC, Chat with Librarian, Vice Chancellor's Speeches, and Institutional Repository and at the lowest bottom a link of Site Map has also been provided to know about the overall areas covered in the website.

Chat with Reference Librarian

Online chat is a generic term mostly known as instant messaging applicationscomputer programs that enable two-way typing to connect users to each other. This new feature is designed to give the user more options and increase communication with Bharathidasan University Library. A set of information pertinent to frequently solved queries were proposal and the amount the initially. An assurance from reference the user sublime is also deployed in coordinating the chat the user.



Figure 2

This service is available Monday to Friday 10 am to 5 pm. To chat with a librarian, enter the user name and e-mail address and then click Chat. A Chat window will open in another browser window.

Introducing Dspace

User can have the search to any document by using the search facility available on each page. Search can be made by Author, Title, (Alphabetical order) and Date. They can jump alphabetical under any community or collection by using any keyword. Further they can use the advanced search option by using - and, or, not with the combination of Keyword, Author, Title, Subject etc. in whole Dspace or any Community / Sub Community.

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Figure 3

The design of communities and sub communities in Dspace have been discussed thoroughly with in the library staff and advice have also been taken from all the HOD's of all the departments i.e. All departments, BDU Publications, and Sub Communities have been created.

Vice - Chancellor Speeches

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(Imayam College Convocation Function (Imayam College Convocation Function, WAV)	
(Patrangnar Anna 100th Year Celebrations (Faerangnar Anna 100th Year Celebrations WAV)	
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To extract the tacit knowledge, Bharathidasan University library recorded Vice Chancellor's Speeches. These Speeches are being digitized and made available from the link 'VICE – Chancellor Speech'.

Introducing Think Tank

If users have any idea and problems related to any specialized area of science, Management, arts and humanities, then they can ask any question. Their queries will be forwarded to the expert concerned and replies will be sent to their requested e-mail directly by the experts. They can browse and submit there questions through this facility and can get the answers by the experts. Users may share their own documents with each other through this page or they can also submit the documents which seem to be useful to the entire community of the students, research scholars and faculty members, after proper scrutinizing, the document may be granted to include in the Institutional Repository. There are three columns namely, e-mail ID and file.

E-Clippings



Figure 6

News Clippings services contains the news and programmes related to Bharathidasan University which is published in the news papers. The main sources of information's are from The Hindu News, IE, FT, I+T and all are clustering with English and Tamil paper, Education Charter International etc and also by scanning the printed news clippings.

Introducing DDS (Documents Delivery Service)

Bharathidasan University Library has different types of holdings such as reading and reference materials for the use of its members which can be supplied through e-mail or personal delivery basis on the request of users. The form for the purpose is available in this menu; users can submit their request for the resource which they want along with their name, and e-mail.

Introducing RSS Feed

Really Simple Syndication (RSS) technology uses XML and allows a user to subscribe to websites that have provided RSS feeds. Feeds typically are provided on web content that changes regularly. We have introduced RSS as its utilities was very much appreciated and are in demand by the users, because after all we are providing the services to mass and they have the right to know the latest up-dated and changes when ever is made in the website. To read the announcement, a user can put the cursor on the box, or can drag the text up and down and by clicking can view the linked file.

We currently have an archive of about five items that we rotate through when no new features are waiting to be highlighted. Examples of these are the RSS, Bharthidasan University Library Automation, Defaulters List, Requisition Form, No-dues from Library, and Allowed Sites in Library

Bharthidasan University Virtual Reference Library Portal: quality sustenance

The main challenge after launching Bharathidasan University Virtual Reference Library Portal is how to make it live, how to guarantee its future success, and how to encourage users to use it. Here are some policies we have adopted:

Ensuring the Information is Kept up to Date

The data will be updated regularly and the date of the update will clearly be indicated. The user should be able to see that the reference portal is dynamic through the information being added or removed. The current news option will be maintained regularly.

Clear and Suitable Organization of the Information

The data accessed through any menu should be structured, with an index, alphabetical list, subject, taxonomy, search engine, and any facility that makes the data easy to display and to use.

Quality of the Content

The information is collected according to the requirement of the users and the specialised information is focused mainly to the expectation of the user's interest at Bharthidasan University. As too much of information is dangerous and the users could be overwhelmed, it is carefully filtered the unwanted or unnecessary content before it is added to the portal site.

Listening to the Users Needs

It is necessary to create a permanent relationship with users to listen to their needs and create a methodology of action and thinking on the best ways to enrich the portal and make it consistent. Continuous evaluation of the usage of the portal allows the quality to be assessed and menus added as necessary.

Friendly Interface

The simpler the interface the better the usage will be by the users as they might have felt comfortable with the simple and easy interface for browsing and searching. The ease of use of functionalities, the combination of colours and precise font are all some important ingredients for designing and implementing a successful portal.

It is hoped that following its launch in January 2010 with all possible appropriate methods adopted with the utmost use of technology along with the human factors behind it, the restructured Virtual Reference portal will become an indispensable tool for users at the Bharathidasan University for their upcoming career in the academic research.

Conclusion

We have designed the Virtual Reference library webpage in such a way that helps us to re-build the library and information services to maximize the usage and draw users back into the library, both physically and virtually. But we are still waiting for the maximum utilization of the library services through the web. A few new advanced features have been introduced and the users need to train how to utilize them for bring out their maximum result. But we, being the University library staff members are sure that our users will cope up with the latest technology and will utilize the library web portal in a better way for their research and development programmes.

In the Bharathidasan University, we continue to explore new ways to connect with both traditional library users and new users who have never visited the library. By viewing changes in technology and communication patterns as opportunities to reach our users rather than as barriers that keep them away, we are better able to serve our community.

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Bharathidasan University Library Network: a boon for effective resource sharing in digital era

Prabu, R.¹, Ragavan, S.² and Jeyapragash, B.³

Abstract

Libraries can be at the heart of personal and community development, encouraging and sustaining literacy, and supporting education for all. The explosion in the amount of literature that is available, increases among the number of users and their different needs, and the application of electronic media are forcing libraries to construct and participate in networks. Based on the above situation this paper highlights the necessity, implementation and utilization of Bharathidasan University library network for effective resource sharing among its participating libraries.

Key words: Library Networks, Resource Sharing, Consortia

Introduction

Bharathidasan University established in February 1982, and was named after the great revolutionary Tamil Poet, Bharathidasan (1891-1968). The motto of the University "We will create a brave new world" has been framed from Bharathidasan's poetic words. National Assessment and Accreditation Council (NAAC), the apex body of Higher Education in India, has accredited the University with high profile of highest quality score among the State Universities in India and rated among the top 25 Institutions of Higher learning. The University Research Papers documented by *Web of Science* reveals the total Global Citation Score as 10982 and h-index as 40. The affiliating jurisdiction is over 138 Arts & Science/Fine Arts/Education Colleges and 18 Approved Institutions. The programmes offered through affiliated colleges are so diversified that they number more than 250. The inserted student strength in the affiliated colleges is over 1.40 lakhs (Indian Rupees).

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Bharathidasan University main library collections about 95,000 Books and back Bharathidasan on subscribes to 204 current journals at national and international level volumes to cover a wide range of subjects to facilitate use international level as print copies to cover a wide range of subjects to facilitate users to access current as print copies to correct literature. It also has on-line access to more than 8000 journals in full text and a few databases of abstracting and Indexing journals. In addition, 8500 Springer E-books have been procured on various subjects with perpetual access to enhance the quality of teaching and research activities. The Library provides the traditional and web based services to the faculty, scholars and students of university and access is made available for the general public. students of universities in the universities in the court of the general public. of E-resources among the universities in the country and it has been ranked 1st position by the Springer for the access of Springer E-resources among all 125

Development of Library Networks in India

Forced by circumstances and by design, there has been a spurt in activities on library network development in the recent past. Some of the factors responsible for promotion and support of such efforts in India have been:

- Increased awareness of the need for resource sharing. •
- Resource crunch.
- Increased computer installations or access facilities in library environment • and enhancement of computer literacy among library professionals.
- Improvement in computer communication facilities within and across • geographical regions, and availability of general data networks like NICNET (Planning Commission), INDONET (CMC Ltd) ERNET (Department of Electronics) and more recently the I-NET (Department of Telecommunications), VSNL for Internet & Private Service providers like Reliance, TATA Telecom etc.
- Creation of facilities for e-mail by networks above mentioned VSNL, • SIRNET (Network of the Council of Scientific & Industrial Research set up by INSDOC) and the ICNET, SPRINTMAIL (SPRINTRPG) etc. in the private sector.
- Promotion of library automation by INFLIBNET, DELNET, NAAC, • AICTE and other agencies.

The Library Network Development in India has taken Three Board **Directions Namely**

In India, library networking efforts using computer communication technologies started during the late 1980's with the initiation of metropolitan / city networks like:

- 1. Development of Metropolitan Area Networks (MAN) in cities such as Bombay (BONET), Calcutta (CALBINET), Delhi (DELNET), Madras (MALIBNET), Pune (PUNENET), Ahemdabad (ADINET), Mysore (MYLIBNET), Hyderabad (HYLIBNET) and Bangalore (BALNET).
- Development of countrywide networks like the INFLIBNET (for university libraries).
- Development of sectoral facilities like the BTISNET (Biotechnology Information System Network), and the proposed ones for oil and natural gas, management science and environment.
- Development of National Consortia such as INDEST, UGC Infonet, CSIR Consortia etc.

Some Active Library and Information Networks in India

PUNENET	: Poona Library Network, 1992
BONET	: Bombay Library Network, 1992
ADINET	: Ahmedabad Library Network.1993
MALINET	: Madras Library Network, NSDOC, 1993
BALNET	: Bangalore Library Network, 1995
MYLIBNET	: Mysore Library Network, 1995
DELNET	: Delhi /Developing Library Network, 1998-99
CALIBNET	: Calcutta Library Network, 1998
MANLIBNET	Management Libraries Network, 2000
RECNET/NITNET	: REC/NIT Library Network

Objectives of Bharathidasan University Library Network

- To utilize the resources in a better way, by concentrating on specific areas of interest.
- To generate new services and to improve the efficiency of existing ones.
- To develop forums for interaction among information professionals and users and thereby, helping them seeking solutions to common problems.
- To promote and support adoption of standards in library operations.
- To improve the national information infrastructure specifically in State of Tamil Nadu.
- To form a BARATHILIBNET Library Consortia.
- To promote better understanding among participating institutions & libraries.

• Easy access to information resources available throughout the Libraries of Bharathidasan University and College Libraries.

Need of Bhrarathidasan Univeristy Library Network

The central library of the university and more than 100 affiliated institutions have a good collection of documents relating to Science and Technology, Humanities and Social Sciences. Some of the affiliated college libraries particularly located in Trichy city also have a special collections of literature belongs to Trichy and Thanjavur Cauvery belt. A number of these libraries have already computerized their housekeeping operations and have created bibliographic databases of their own collections. Moreover many libraries have not put their database on the Internet; hence it is not possible to trace the availability of collections.

Some of the Libraries are good in resources and facilities, particularly ICT Infrastructure, many of the affiliated institutions are very poor in terms of collection and other resources. Bibliographic compilation of data using computers, automation of in-house operations also significantly varies in terms of hardware and software use, the product and services designed and standards adopted. Hence it is appropriate, to design a common protocol for networking and database management to provide Library and Information environment to the academic users of this region. It needs proper research to be carried out in assessing the prevailed information environment and customize the requirements of the academic community.

Library and Information systems and services normally get involved in interdisciplinary approach in designing of Information Products and Services. This requires contributions from the faculty, adoption of techniques of information technology and educational technology from the inception till its implementation. It is also discussed about content development of teaching resources; it involves indexing, data mining and archiving, knowledge management principles and educational research methods.

Role of Bharathidasan University Library Network in Digital Era

- 1. Information available in the different library & information centers would be accessible to the right users as quickly as possible.
- To make linkages among libraries having information on different areas of interest, with a view to prepare national information resources database and to improve access of the available information so that the information needs of the users cab be met as quickly as possible.
- Optimum utilization of the existing national information resources, systems and services.

- 4. To promote exchange of information among institutions.
- To promote exchange of information datable information resources for
 To prepare a common platform for the available information resources for better & effective usage. 6. To organize seminars and group discussions for exchange of views and
- information on the latest developments in the field. 7. To prepare a Union Catalogue of journals holdings available with
- different institutions.
- 8. To offer computerized services to the users and coordinate efforts for To other computerized services and for reducing unnecessary duplication wherever possible.
- 9. To provide all their library resources to the members in sharing and To provide all their library and deliver them after due identification, the library reading material, at individual costs.
- 10. To extend the facilities to the members to interact through remote login of the data available in electronic forms.
- 11. To form consortia.
- 12. To develop and strengthen existing information system/network at the national level and thereby promotes effective participation in national development.

Benefits to Target Audience

The benefits that are derived to the different target audiences from the network are as follows.

Students

- Students across the universities and affiliated colleges have wider access to resources.
- · E-content (created by faculty of University or other colleges or downloaded proactively by network staff from the web) can be put on the network and will become accessible to all students of the same subject across the network via the web.

Research Scholars

Research Scholars across the universities and affiliated colleges have . wider access to resources. (Electronic Theses and dissertations and scholarly publications).

Faculty

They also have knowledge and access to resources across the network and . beyond and can make their teaching materials (Lecture notes, Presentations etc.,) available to other teachers and students in the network and also benefit from that of others who contribute their teaching resources.

Others Institutions

- The introduction of new technologies in libraries will open the doors to wider sources of information.
- Colleges (Liberal Arts and Science 93, Fine Arts & Arts and Crafts 03, Uni-faculty institution 01, Approved Institutions 13) can begin to participate in cooperative arrangements that will enable wider access to electronic resources and reference materials in full text form for the benefit of students and faculty

Libraries of Universities and Colleges

- Better efficiencies because of automation
- Possibility for new services
- The union database that will be developed in the network will have better quality metadata, such data can be downloaded from free sources on the web.
- Libraries can simply share metadata instead of duplicating their work
- Costly resources are better possible to be shared.
- Training will be providing to library staff at Bharathidasan University and colleges will update skills to enable library staff to handle newer webbased technologies and resources for the benefit of the academic community.

In addition the proposed network may enable the benefits like federated search services, Inter Library Loan and Document Delivery Services among participated libraries

Architecture of the Network

This project will connecting all Libraries and provide the base for promoting resource sharing services to users among the Institutions (To connectivity of 110 Institutions (Autonomous Colleges (Arts & Science) – 18, Non- Autonomous Colleges (Arts & Science) – 75, Fine Arts & Arts and Crafts - 03, Uni-faculty institution - 01, Approved Institutions -13).



Figure 1

Technical Details

- o Inter
 Xeon
 CPU x5450
 a 3.00GHz
- o 1.6 Ghz with 1066 MHz
- o FSB 8 MB L2 cache
- 1. Intel 5000p Chipset
- o 4 GB ECC DDR-II RAM with 667Mhz
- o 4 * 146 GB SAS HDD with 15000 RPM
- o 16X DVD Writer

Conclusion

In recent times, quite a large number of libraries and information centers are forming networks for sharing the resources among the participating Libraries. The advent of computer networking as an accepted part of the library and information infrastructure has had a very significant impact on the way in which library and information systems are perceived. India is thus on the threshold to a new era of computer communication networks both for general purposes and for library and information purposes. This Bharathidasan University Library Network will constitute a unique opportunity for the region to avail of cutting-edge Information Technology to give a fillip to the development of the region.

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Integrated Library Management Systems (ILMS): an assessment of open source and commercial softwares

Syed, Fazlunnisa¹ and Pratheepan, Thuraiyappah²

Abstract

An Integrated Library Management System is a computer-based system used to manage internal and external resources including tangible assets, financial resources, materials, and human resources. It performs library automation and collection development tasks broken down into different modules that are focused on simplifying tasks such as acquisition, cataloguing, and circulation commonly done in any library. It is built on a centralized database and normally utilizes a common computing platform and consolidates all library operations into a uniform and enterprise wide system. The purpose of this paper is to compare the merits and demerits of open source and commercial library management systems widely in use. Some of the compared LMS systems include Koha, Evergreen, NewGenLib, Libsys, Voyager and SOUL. The paper suggests, on the basis of the pros & cons the best suited system that could be implemented in the University environment.

Keywords: Integrated Library Management System (ILMS), Open Source Software, Commercial software, License, Pricing

Introduction

Information has always been an important factor in human endeavors. Mankind continually has strived to produce, accumulate, and distribute Information. The Information requirements have led to the establishment of libraries or documentation and information units to perform the tasks of identifying, locating, analyzing, and mediating information. Library Management Systems (LMS) are computer based systems that automate one or all functional areas performed by a library. LMS have also been referred to as 'Integrated Library Management Systems' (ILMS) to reflect the fact that all functions are managed via a central database with processes that transparently exchange data between functional components such as catalogue records and circulation transactions.

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The term 'integrated' is used to refer to a system in which all the library functional The term integrated to distribute of source in which all the library functional modules, such as acquisitions, circulation, cataloging, serial control, budgeting modules (Online Public Access Catalog) are processed and and OPAC (Online Public Access Catalog) are processed against a single master bibliographic database. Genaway (1984) expanded the definition and described the bibliographic database and has two or more subset that uses a common machine-readable database and has two or more subsystems operational and accessible online". Today libraries are facing challenges posed by diverse and accessible online information universe. Increased user expectations for faster and easier access to relevant information go hand in hand with institutional demands for increased operational efficiency. The integrated library system provides academic, research, and national libraries with the efficient, user-friendly tools and workflow support they need to meet the increasing requirements of the library users. As consequence of technology and organizational development the role of librarians' are no longer just those of preservation and circulation but more importantly of offering Information Services. The automation of library routines enables deliverance of excellent services as well as an enhanced user experience.

Factors involved in Selection of ILMS

UNESCO defines Integrated Library Management System as "an automated library system that is capable of managing the operations of more than one basic library functions". Some of the basic factors to be considered before setting up an ILMS are

System Functionalities

The purpose of library system is to facilitate quality and effective library catalog as a tool for accessing learning and teaching resources. A good library system should enable librarian to manage library resources in a more effective way and to save administrative effort.

Flexibility/Compatibility

Library management system should be able to Support system expansion and upgrading, should support user customization, should be compatible with other computer equipments and should support networking

Feasibility

The system should be Easy to learn, Easy to maintain and Easy to fix.

Pricing

The pricing statement will include the following components:

- Basic modules of the library management system
- License statement
- □ Additional modules (optional)

- Data migration
- Installation and maintenance charge

Optional hardware/software, requested (i.e. web server, client workstation, barcode scanner, operating system and etc.)

Maintenance

Annual maintenance is an integral part of any system. The maintenance package should include labor charges for installation, on-site visit, cost of package should monde of system upgrade, services and free operation manual

Performance

The performance of the system can be evaluated in terms of:

Time Saved - The speed at which the routine library activities such as in Π circulation - charging, discharging, renewal, reservation, sending reminders and so on are performed by the automation systems.

Manpower Saved - The human resources form an integral part of the library system, the time saved due to automation of the routines allows the librarian to focus on providing valuable reference and information services.

System Response - Any system is effective and efficient when the time taken to react and respond is minimal. This has a considerable impact on the performance of the system.

D Robust Online services should be provided; the system should have a powerful search engine enabling patrons to search the catalogue (OPAC), view their loan history (circulation records) and renew their own loans, statistical analysis and custom reporting.

Optional Features

The system should be flexible to adopt other features that are optional depending on the demand of the library. For instance:

- New book display function
- Book review function
- □ Feature to support reading activities
- Printing function e.g. spine label printing

The task of evaluating integrated library systems is necessary to choose the most appropriate library management system that will answer the needs of the library in automating its operations.
According to Peggy Johnson, the top ten factors involved in choosing an LMS are

- ✓ Easy usability by patrons,
- ✓ Easy use by staff,
- ✓ Availability of application modules and subsystems,
- ✓ Completeness of modules and subsystems,
- \checkmark Cost of the system,
- ✓ Cost of Hardware,
- ✓ Professional Staff Requirements,
- ✓ Service reputation of vendor,
- ✓ Comparable installed site and
- ✓ Experience with the vendors.

With the invention of technology (Web 2.0), the web has become the platform of choice or software development. Ordinary individuals contribute via blogs, wikis, podcasts and social networks. This has impacted the expectations that library users have from libraries and LMS. New kinds of enterprise applications have become available to institutions and there is demand for better integration of LMS with such systems. It is evident that developments in both hardware and software technology and the use of new paradigms such as the relational model, object-oriented analysis and design, client-server architectures and languages particularly well-suited to the World Wide Web have had an influence on the evolution. A major technological influence has been the growth of the web and its distributed environment under different platforms, formats, languages and data models requiring that the LMS supports interoperability. The rapid advancement of computing technology in recent years has prompted the library professionals to rise to the occasion and create better solutions, bringing about greater benefits to the community of consumers.

All this has lead to a debate in choosing between Open source and Commercial Software.

Perception of Open Source and Commercial Software

The nature of open source and commercial software development methodologies, the related licensing approaches and the underlying intellectual property foundation are discussed below;

"Open Source" is a software-licensing model where the source code of the software is typically made available royalty-free to the users of the software, under

terms allowing redistribution, modification and addition, often with certain restrictions. An open system is a design philosophy antithetical to solutions designed to be proprietary. The idea behind it is that institutions, such as libraries, are can build a combination of components and deliver services that include several vendors' offerings. Thus, for instance, a library might use an integrated library system from one of the major vendors in combination with an open source product developed by another library or by itself in order to better meet its internal or users' requirements. Software companies are also contributing paid programmer time and programs developed in-house to the open source

Community. Open Source movement has its roots in this hacker culture of seventies and eighties. According to Morgan (2002):

"OSS is both a philosophy and a process. As a philosophy it describes the "OSS is both a philosophy and a process. As a philosophy it describes the intended use of software and methods for its distribution. Depending on your perspective, the concept of OSS is a relatively new idea being only four or five years old. On the other hand, the GNU Software Project – a project advocating the distribution of "free" software -- has been operational since the mid '80's. Consequently, the ideas behind OSS have been around longer than you may think. It begins when a man named Richard Stallman worked for MIT in an environment where software was shared."

According to Open Source Initiative: "Open source promotes software reliability and quality by supporting independent peer review and rapid evolution of source code. To be certified as open source, the license of a program must guarantee the right to read, redistribute, modify, and use it freely".

Some of the popular open source ILMS available are

- 🗆 Emilda
- 🗆 Evergreen
- □ FireFly
- 🗆 Koha
- □ PhpMylibrary
- OpenBiblio

"Commercial Software" is the model where the software developed by a commercial entity is typically licensed for a fee to a customer, either directly or through channels in object, binary or executable code. The commercial entity often provides support, training, updates and other similar services needed by customers to efficiently use that software. The source code of the software may be made available to certain users of the software through special licensing or other agreements, but is usually not distributed to the general public, and may not be copied or modified except in a manner provided for in such agreements.

Some of the commercial ILMS software available:

			ary software
Name	Developed by	Price	
		(INR)	Clients
ALICE	Softlink Asia	3,50,000	Union Public Service Commission, New
LibSys	Info-Tek Consultants Pvt. Ltd	4,50,000	Delhi Indian Council of Medical Research
LiBSUITE	Soft - AID	4,50,000	Corporate sectors such as ITC Ltd, Larsen & Toubro
SOUL	INFLIBNET	50,000	All Universities in
Voyager	Endeavor	NA	Library of Congress
Virtua	VTLS	8,00,000	Indian Institute of Technology (IIT). Indian School of Business (ISB)

Table 1. List of available commercial library and

The open source and commercial software approaches have each their own strengths and challenges, and can bring to users a number of benefits along with tradeoffs, depending on the circumstances in which they are deployed. The models are not mutually exclusive, and companies are increasingly finding ways to embrace both approaches and allow them to co-exist. This approach allows greater focus to be placed at the development of the higher-level components, where innovation may bring greater benefits to customers. Driven by the needs of the customers, the vendors of commercial software solutions continually strive towards developing products that are easy to use, rich in functionality, value for money and supported by a services eco-system as demanded by customers who may not be technically savvy, and want to solve their problems with minimum strain. Consumers today are choosing from a wide range of software choices and vendors, even in areas that traditionally have few competing products. Some select open source because it allows them to freely copy, modify and then redistribute the source code. Such characteristics appeal to those who want to alter the software source code, for example, in academic settings where experimentation is a primary objective or in settings where a high degree of customization may be required.

Analysis of Open Source and Commercial Software

The open source and commercial software are observed from the business, development, licensing and technical perspectives for better understanding.

Business

There are some basic differences between the business models of open source and commercial software providers, providers of both models must each find their means to create sustainable revenue. The focus of commercial software providers is on the functionality, features and innovativeness of their technology to meet the customer's needs, as their revenue model is based on the customer licensing their software. Customers purchase new versions of software when it provides new functionality, features and value. This incentive drives a tremendous flow of research and development spending into new software, the results of which include higher productivity, lower costs of business, and new tools for learning.

A system integrator who earns revenue by creating customized solutions for customers by using existing open source software as the starting point, and charging the customers for the time and resources to do the necessary customizations to meet the specific user requirements. Another model is to allow free downloads of an open source application and to convert this base of users into paying customers for a full-featured version. It is recognized that in the open source community, there is also a group of contributors who are motivated not by direct revenue generation, but by an altruistic notion that all software should be free and that the code will be improved by volunteers who willingly make their work available for anyone's use and reference.

From the customer's perspective, the value that a customer derives from a commercial software product typically correlates with the licensing fee, software functionality and product support. While the customer can correspondingly hold the commercial software vendor directly accountable for the software, there is no "owner" of most open source software and thus it is difficult to assign accountability.

Development

Another factor that has historically distinguished open source and commercial software is the approach taken towards the development of software. Commercial software development teams historically work within the confines of a single organization or unit for the primary code development. In both the commercial and open source software development approaches, the common underlying development process is an iteration of design, standards, coding, testing, release and feedback. Skilled programmers, whether developing with the open source or commercial software models, are able to gain recognition in their own right for their contribution to software development as they solve unique and complex

Licensing

The primary underlying difference between the open source and commercial The primary understand of software commercial software providers typically adopt the traditional software licensing approach where permission to use the software is granted to a customer in return for a fee. The customer is usually permitted to use, reproduce or adapt the software only according to the terms of the license. Open source software is made available under a variety of licensing approaches with certain common features such as the right to modify and the right to redistribute the software. The copyright within the software is the foundation of the licensing contract, just as it is the case with commercial software. Rights and permissions are granted subject to conditions. In general, these conditions restrict how the software may be further changed or distributed, rather than impose a requirement that a fee be paid for it. There are two principal open source licensing approaches - the GNU General Public License (GPL) and the Berkeley Software Distribution (BSD) License. Under the GPL, all derivative works of the software and subsequent versions down the chain must be licensed and distributed on the same terms as the original software. Source code subject to the GPL permanently remains subject to GPL. In contrast, under the BSD License, developers have the freedom to integrate the licensed software with the developers' own source code to create new products with few restrictions. The GPL prohibits charging money for the distribution of source code, other than to cover the administrative cost of copying and shipping. While the GPL permits the open source software to be sold to a customer for a fee, the license and the access to the source code allows customer to freely redistribute or modify the code without further payment to the original party the code is acquired from. Charging fees for system setup, system management, support, maintenance and other related services is also permitted under the GPL.

Intellectual Property

In the knowledge economy, one of the most important assets that we can leverage is our intellectual assets - data, information, knowledge. Without Intellectual Property Rights, software owners lack the incentive and legal basis for commercializing their creations, and the software industry cannot be an engine of economic growth. Although open source software is often available for free download, it follows the need for intellectual property rights protection under the open source software model. In addition, the use of the source code from open source developers is often permitted on the condition that there is an appropriate attribution to the author of the original source code. Hence, irrespective of the software models adopted, the existence of a sound intellectual property rights regime is essential.

Technical Reasons

Cost

Whether open source software is cheaper than commercial software for a Whether open source software is chapped in the context of the lifetime costs of a particular customer should be determined in the context of the lifetime costs of a particular customer should be determined in the event of the formation costs of a product. While some open source proponents say that open source software is product. write some open source proponents of the commercial model also point cheaper than commercial software, proponents of the commercial model also point out that the total cost of ownership can be less for commercial software than for out that the total cost of ownership controlling the control of the initial purchase open source software with similar functionality. In terms of the initial purchase open source software with smaller than commercial software. However, price, open source solutions may be cheaper than commercial software. However, in making buying decisions, consumers must also consider the cost of software during its entire lifecycle, rather than the one-time purchase price. Just as consumers weigh the long term costs of buying cheap mobile phones as opposed to more expensive phones with low recurrent costs, they should not determine the cost of software merely based upon the initial purchase price. They must also take into account long-term support and maintenance needs, in addition to other less tangible issues such as usability of the product and productivity gains. Purchasers should also consider the cost of re-training users familiar with one product to become competent in an alternative product. Such re-training costs may be quite significant when one takes into account the total time spent by the users undergoing such retraining and the initial lower productivity levels while the users familiarize themselves with the alternative product. The technology decision makers should weigh the full range of costs, including lifetime costs and migration costs, when evaluating the choice of LMS.

Security

It has been argued that open source solutions, whose source code is available for public scrutiny, are inherently more secure than commercial software solutions, whose source code is not published. There are also those who argue that where source code is published, it is easier to find and exploit flaws in software, and also others who say that source code access is irrelevant to software security. The viewpoints are wide-ranging. The three key factors related to the security of software are the quality of the developers, the techniques and tools used by the development team to reduce vulnerabilities, and the strength of the relationship between the customer and the software provider. A poorly maintained product offers little security, regardless of the software development model used to create the product, or the rigor to which the software was tested.

Flexibility

The argument that open source solutions are more flexible for customers than commercial software stems from the ability of a customer to examine the source code and make the necessary alterations to the code. This also allows technicallysavvy customers to potentially identify any problems in the system and make their

own changes or fixes to the software to rectify the problem. The flexibility to own changes of fines to the source solution also leads to another phenomenon modify source code in an open source solution also leads to another phenomenon modify source code in an open active solution also leads to another phenomenon known as "forking". Forking occurs when one developer decides to modify the cource code and takes a path that is divergent from the court known as "forking, i totally because their one developer decides to modify the software source code and takes a path that is divergent from the original software software source code and changes or improvements made to one version of the such that any subsequent changes or improvements made to one version of the such that any successful to the other version. Issues of compatibility and continuity will therefore arise and need to be managed. Customers who make their own will therefore and the software will also find that the continued support and modifications to the changes becomes a more involved process, as the support and maintenance of such a support and the knowledge of the prior customization, as well as the skills needed to perform subsequent alterations. In contrast, commercial software solutions tend to have a more well-defined and controlled upgrade and migration path for products. Customization built on such platforms using the published application programming interfaces often will continue to work with upgraded and future versions of the product with little or no changes.

Evaluating ILMS

The task of evaluating integrated library systems is necessary to choose the most appropriate library management system that will answer the needs of the library in automating its operations. In considering options between open source and commercial software choices, the following should be considered:

• Cost considerations should be viewed in totality. While cost is an important issue, it is usually not the sole determining factor for a procurement decision.

• In any software deployment, the total required manpower should not be underestimated. Options are available in the market today for suitably skilled and trusted manpower for the support of a software platform to be retained inhouse or obtained from an outsource vendor. It is essential that the entire range of manpower required be taken into account in the evaluation and selection of the software product.

• To enable the use of a product securely and reliably, there needs to be a shared responsibility between the customer and the software provider. The software provider has the responsibility to develop the software in accordance with best practices in security, to rigorously stress-test the LMS and to develop updates and patches rapidly when vulnerabilities are subsequently uncovered. On the part of the customer, suitable and adequate resources should be allocated to ensure the correct installation, deployment and maintenance of the software.

• If a security review of the source code is required, appropriate expertise should be made available to meaningfully scrutinize the source code of the components to be deployed. It should not be assumed that because the source code has been made publicly available that it has, in fact, been sufficiently reviewed.

• Requirements for flexibility in modifying the acquired software should be carefully considered against whether the expertise to exploit such flexibility is available, and if the necessity for flexibility is fundamental or merely incidental. The long term support implications for non standardized modifications to the software should also be factored into the purchase decision.

ILMS for Academic Libraries

Academic library development is always tied with the development of the Institution it serves. The old concept of library service limited to a single library has undergone a phenomenal change extending it beyond the four walls of a library. Ranganathan's innocuous fourth law, 'Save the time of Reader' has assumed new meaning, introducing an idea of instantaneous library service brought into practice with the manifestations of ICT. Libraries chose the open source ILMS primarily because it is affordable and secondarily because it is functional, customizable, and free from vendor lock-in. Academic libraries have found neither open source ILMSs more affordable and customizable than proprietary ILMSs, but neither as easy to install nor as well documented. The total cost of an open source ILMS, taking into account both initial and perpetual costs, was on average less than that of a proprietary ILMS. However, the initial cost of labor to install an open source ILMS is often found to be higher than that of a proprietary ILMS. The word free in free software thus means having liberty to view the source code, rather than having no cost. Library Software, in fact, should facilitate both library operations and library services and enhance their scope, periodically. If use of software limits both, it hinders the development of the library.

The past history of libraries indicates that libraries have adopted contemporary technologies and moved ahead with times. The present changes are, however, fast and libraries are finding it difficult to keep pace with them. They need financial and administrative support from different agencies to meet the new situation. For transforming our traditional academic libraries into 21st Century libraries, library professionals need be oriented to the newly emerging areas of the profession. It is encouraging to find individual Universities coming forth to provide library professionals similar opportunities through refresher courses, seminars and workshops as well as in house software (SOUL by University Grants Commission).

Conclusion

Recognizing Ranganathan's five laws of Library Science and their underlying concepts as powerful inspirations for social change, Mentor Cana in his paper analyzes open source software and its congruency with the five laws of Library Science replacing the term "Books" with the term "Software" promoting the usage and growth of Open Source software. The need to bridge the widening digital

divide in developing countries has led to the introduction of initiatives of open divide in developing to reduce the initial cost of owning the computing source software so as to reduce the initial cost of owning the computing source software software software should state in clear and objective technology. All organized and requirements that it needs fulfilled, and allow all including both open source and commercial software and allow all terms the function of the open source and commercial software vendors, and allow all vendors, including both open source and commercial software vendors, to submit their proposals to the organization for consideration. The specifications should contain criteria such as the functionality, security requirements and performance contain criteria cut the user needs. The core functions of Libraries will always remain the same, viz. collection, organization and dissemination of information and knowledge. The ways to carry them out, however, are undergoing change and knowledge. The and application of Technology. Market based competition is ultimately the critical driving force in fostering better software innovation that is relevant for Information professionals and users. The future is 'open'. The empowerment to innovate and collaborate is gaining momentum and all can be

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Virtual Union Catalogue for Sri Lankan University Libraries (SLUCat)

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Abstract

This article explains compilation of a virtual union catalogue for Sri Lankan University Libraries. Intention of this project is to facilitate easy access to bibliographic information of individual university libraries. It was developed using PHP, JavaScript and searchable in all key bibliographical access points such as title, author, Subject, publisher, ISBN, Series, Class Number and subject heading.

Currently university libraries of Ruhuna, Rajarata, Wayamba, and South Eastern are contributing to SLUCat.

The system gives the facilities to search in all important fields (title, author, subject, publisher, ISBN, series, Class Number and subject heading), to display newly arrived books in connected Libraries, to view records statistics of each library, etc.

Keywords: Union Catalogue, Distributed Catalog, SLUCat, OPAC

Introduction

Libraries are the focus of the academic and research activities of any educational system; however libraries are always in need of recurrent expenditure to maintain even the existing collections and services offered to its users. Libraries, in developing countries like Sri Lanka, have been facing the heat of shrinking budgets and escalating prices for scholarly information (Hettiarachchi, 2001). Due to this problem, Libraries can use resource sharing and document delivery concepts. When using resource sharing facilities, the catalogue plays an important role.

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²K.H. Ramanayaka University of Ruhuna, Sri Lanka kokila@cc.ruh.ac.lk A library catalog (or library catalogue) is a register of all bibliographic items found in a library or group of libraries, such as a network of libraries at several locations (Encyclopedia of Computer Library Cataloguing, 2008). A bibliographic item can be any information entity (e.g., books, computer files, graphics, cartographic materials, etc.), that is considered library material (e.g., a single novel in an anthology), or a group of library materials (e.g., a trilogy), or linked from the catalog (e.g., a webpage) as far as it is relevant to the catalog and to the users of the library (Wikipedia, Internet).

The card catalog was a familiar sight to library users for generations, but it has been effectively replaced by the online public access catalog (OPAC) (Dhawan, 1997). Some still refer to the online catalog as a "card catalog." Some libraries with OPAC access still have card catalogs on site, but these are now strictly a secondary resource and are seldom updated. Many of the libraries that have retained their physical card catalog post a sign advising the last year that the card catalog was updated. Some libraries have eliminated their card catalog in favor of the OPAC for the purpose of saving space for other use, such as additional shelving (Wikipedia, Internet).

The concept of a Union Catalogue is based on a model of co-operation between groups of libraries wishing to build a common infrastructure. Although library catalogs typically reflect the holdings of a single library, they can also contain the holdings of a group or consortium of libraries. These systems, known as union catalogs (Encyclopedia of Information and Library Science, 1993), are usually designed to aid the borrowing of books and other materials among the member institutions via interlibrary loan (Karen Coyle, 2000). The largest such union catalog is WorldCat, which includes the holdings of over 10,000 libraries worldwide (WorldCat, Internet).

WorldCat is a union catalog which itemizes the collections of 71,000 libraries in 112 countries which participate in the Online Computer Library Center (OCLC) global cooperative. It is built and maintained collectively by the participating libraries (WorldCat, Internet).

Union catalogues have always been a very useful tool for ILL and document delivery. They provide "one-stop shopping," to use a current term, simultaneous access to plural collections, whether the collections be physical, virtual or both. It is important to remember that union catalogues need not only be a "tool" in the sense of being used to implement ILL and document delivery: they can also serve to formulate document delivery requests, and often do (Srinivas, Internet). If it is a library's aim for its document delivery service is to be used as fully as resources permit, then one important means for such utilization is the provision of public access to the union catalogue, so that not only library staff but also end-users can identify all the more readily potentially valuable interlibrary loans and other interlibrary transactions.

There are several ways to design a union catalogue. The traditional way is to establish a centralized database into which records may be contributed either directly (create records in the central database) or indirectly (local catalogue first, then upload to union catalogue), or both. There is now an alternative, namely, to establish a *distributed* union catalogue. In this model, the local catalogues are linked through their respective servers; client searches each catalogue in turn, creating "on the fly" a virtual union catalogue. The distributed union catalogue has become a popular concept in some library circles in recent years. In some situations, libraries are more likely to participate in the establishment of such catalogues, since the traditional scheme involving a central database can prove a major inconvenience: the library's cataloguing workflow may be hampered by the need to feed records into the union catalogue (Hider, Internet).

History

Library catalogs originated as manuscript lists, arranged by format (folio, quarto, etc.) or in a rough alphabetical arrangement by author. Printed catalogs, sometimes called *dictionary catalogs* enabled scholars outside a library to gain an idea of its contents. These would sometimes be interleaved with blank leaves on which additions could be recorded, or bound as *guardbooks* in which slips of paper were bound in for new entries. Slips could also be kept loose in cardboard or tin boxes, stored on shelves. The first card_catalogs appeared in the nineteenth century, enabling much more flexibility, and towards the end of the twentieth century the OPAC was developed (see below).

- c. 800: Library catalogues are introduced in the House of Wisdom and other medieval Islamic libraries where books are organized into specific genres and categories.
- 1595: Nomenclator of Leiden University Library appears, the first printed catalog of an institutional library.
- 1674: Thomas Hyde's catalog for the Bodleian Library.

More about the early history of library catalogs has been collected in 1956 by Strout. Author catalog: a formal catalog, sorted alphabetically according to the authors' or editors' names of the entries. Title catalog: a formal catalog, sorted alphabetically according to the title of the entries. Dictionary catalog: a catalog in which all entries (author, title, subject, series) are interfiled in a single alphabetical order. This was the primary form of card catalog in the Anglo-American world just prior to the introduction of the computer-based catalog. Keyword catalog: a subject catalog, sorted alphabetically according to some system of keywords. Mixed alphabetic catalog forms: sometimes, one finds a mixed author / title, or an author / title / keyword catalog. Systematic catalog: a subject catalog, sorted according to some systematic subdivision of subjects. Classified catalog is an arrangement with class numbers. Shelf list catalog: a formal catalog with entries sorted in the same order as bibliographic items are shelved. This catalog may also serve as the primary inventory for the library (Wikipedia, Internet).

Early Online Catalogs

Although a handful of experimental systems existed as early as the 1960s, the first online library system access catalog was developed in 1978 by Alicia Paige, a librarian from the Boston area who started up a computer engineering company to market them The first large-scale online catalogs were developed at Ohio State University in 1975 and the Dallas Public Library in 1978 (Online public access catalog, Internet).

These and other early online catalog systems tended to closely reflect the card catalogs that they were intended to replace. Using a dedicated terminal or telnet client, users could search a handful of pre-coordinate indexes and browse the resulting display in much the same way they had previously navigated the card catalog (Wikipedia, Internet).

Throughout the 1980s, the number and sophistication of online catalogs grew. The first commercial systems appeared, and would by the end of the decade largely replace home-grown systems. Library catalogs began providing improved search mechanisms, such as basic keyword searching, as well as ancillary functions, such as the ability to place holds on items that had been checked-out (Dhawan, 1997).

At the same time, libraries began to develop applications to automate the purchase, cataloging, and circulation of books and other library materials. These applications, collectively known as an integrated library system (ILS) or library management system, often include a library catalog module as the public interface to the system's inventory. Most library catalogs, then, are closely tied to their underlying ILS system (Rao, 1992).

Background of the Study

As a by product, union catalogues were the centre for inter-library loans for the privileged few and were also the base for some cooperative collection management. National Library of Sri Lanka started the Union Catalogue system to conduct the Interlibrary Loan System and Document Delivery Services. At the beginning, they started this service using card catalogues. Currently, they have converted this card catalogue into online system by using ALICE for Windows software (National Library and Documentation Centre, Internet). The workflow in National Library Union Catalogue involves the following steps:

- Step 1. The data from universities are exported into the National Library as ISIS format using floppy diskette or CD. While importing the data it searches for duplicate records and creates the authentic records.
- Step 2. Editing of specified fields. After one time manual editing in CDS-ISIS software, National Library also revises the few fields which are important to be checked before giving access to the username of the publisher, publication place, year of publication and edition of the publication. The fields have been managed as a single string (eliminating space and a, an and the) and spelling mistakes or any typographical error is avoided in these four basic fields author, title, place, publisher. If a duplicate title occurs then the software selects the record that contains the maximum number of fields as a master record.
- Step 3. The software matches the above fields with the union database and eliminates duplicate records after adding the record accession number, the code number of the university and the library code and merges this information with the authenticated record or master record for the same title. This step is also known as the deduplication checkout step.
- Step 4. The final record is added to the union catalogue.

This system was not updated in real times because libraries did not send their bibliographical data on time. And also the data should be sent in ISIS compatible format. Some libraries faced difficulties when trying to convert their bibliographical information into ISIS compatible format because their databases were in different format (eg. MySql, Oracle).

National Science Foundation also compiled another Union Catalogue for the Science and Technology Libraries in Sri Lanka. They also started this service using card catalogues. At this moment, they have converted this card catalogue into online system by using Web-ISIS software. This system is using the same technique as National Library to upload data to the system (National Science Foundation, Internet).

Sri Lanka Council for Agricultural Research Institute (CARP) compiles a Union Catalogue by collecting bibliographical data from the Agricultural Libraries in Sri Lanka. They also started this service using paper-based catalogue but now they have converted this paper-based catalogue into online system by using Web-ISIS software, also using the same technique as National Library to upload data to the system (Sri Lanka Council for Agricultural Research Policy, Internet).

As given in the website of the University Grant Commission, there are 15 universities in Sri Lanka and all of them have good libraries (University Grant Commission-Sri Lanka, Internet). Only 11 university libraries have web-based online public access catalogue. University library users can borrow books from any university in Sri Lanka using Interlibrary Loan System and Document Delivery Service. Yet, there is no union catalogue for university libraries in Sri Lanka. Therefore, library users should visit separate Library web based online public access catalogue when they want to search books from university libraries.

Problem Statement

Sri Lankan University Libraries are maintaining their own web-based Online Public Access Catalogue (OPAC). There is no one interface to search books from all OPACs in Sri Lankan university libraries. According to the Dr. S. R. Ranganathan's law, this causes waste of time of the reader (Ranganathan, 1989).

Objectives of the Study

- Efficiently and effectively Resource sharing between the University libraries
- Central access point for users
- Platform for service co-operation, such as interlibrary loan
- Platform for agreement of bibliographic standards
- Efficient management

Methodology

The team has adopted the latest tools for the development of a new retrieval interface and system to retrieve data from the University Library Catalogues. The expert team has decided to use HTML and PHP as a basic programming language and MySql as the database server.

HTML or "Hyper Text Markup Language" refers to a system for communicating to a Web browser how the contents of a page will be displayed. HyperText is a concept that goes back to the mid-1940s when Vannevar Bush1 envisioned a system for linking together concepts within and among documents. A markup language includes text and information about how the text should be displayed (VanSlyke, Internet).

PHP is one of the projects of the Apache Software Foundation (The Apache Software Foundation, Internet). PHP (recursive acronym for "Hypertext Software Foundation, Internet). PHP (recursive acronym for "Hypertext Preprocessor") is free and offered under an open source license. This means that you can use it as you wish. PHP is use for creating dynamic web pages. Its presence is completely transparent to the end user. A web page containing PHP code is "preprocessed" by the PHP engine, called an interpreter, and the results of this processing are passed back to the web server and on to the visitor's web browser. As only the results of the PHP processing are sent to the browser, the code that generated them remains hidden, and is therefore much more secure. This kind of pre-processing is called server-side scripting (Green, Internet).

MySQL is a powerful database management system. Many of the applications that a Web developer wants to use can be made easier by the use of a standardized database to store, organize, and access information. MySQL is an Open Source (GPL) Standard Query Language (SQL) database that is fast, reliable, secure, easy to use, can run on many operating systems, technical support is widely available, and suitable for applications of any size (mysql, Internet).

University of Ruhuna Library is managing a central hub for maintaining union catalogue system and the databases are maintained by the individual university libraries. Therefore, maintaining bibliographical information for union catalogue is not necessary.



Observations

The SLUCat system has many features. Some of them are listed below:

- Displaying newly arrived books.
- Downloading of searched records according to library standards (copy cataloguing).
- Searching in all important fields (title, author, Subject, publisher, ISBN, Series, Class Number and subject heading).
- Join as a member.
- Generating an ILL request form from the web.
- Displaying the location (name of universities) of searched records.
- Efficiency in the search term with user friendly help messages.
- Provision for individual library OPAC search.
- Navigation of records with various display formats.
- Records statistics of each library.
- Help message.

Screen shots of Web version of Union Catalog

Home Page (URL: http://www.lib.ruh.ac.lk/UnionOPAC/)

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Figure 2

Search for Records

Searching is the process of retrieving bibliographic records from a university libraries databases. As shown in the following figure, databases can be searched from the chosen site. All the databases are linked from the main web page. Bibliographic information about an item is entered in a search statement at an appropriate place and sent to the system. The system matches this information with connected databases in the union catalogue and displays the search results.

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	Rotar a tast which you want to search :	Stor	
Bally .			
			TREE .

Figure 3

Display Records

The system will display a list of records statistics of each library and the results with default display fields and link the title to location information. By selecting the title, the system will display the detailed information about the title and its availability. Clicking on the location information, the system will display detailed information of the contact person with the full address.

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Figure 4

Browse for Records

Browsing is the process of retrieving bibliographic records from one university library databases. As shown in the following figure, databases can be searched from the chosen site. The system matches this information in the relevant catalogue and displays the search results.

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Figure 7

Save or Download File

The system has a provision to save files in various formats. These saved records can be loaded onto a local system, which is known as copy cataloguing.

Request for Document Supply

The union catalogue search enables the user to send a document supply request from the web. Thus to improve user satisfaction and library services, libraries can create a web based document supply service; in the case of copies they can send these direct to the end user. After performing the search, users can find the location and send an email for a document supply request to the librarian.

Limitations

Because of different software being used in Sri Lankan University Libraries and because of the different database management systems, the rendering of bibliographic information with items in their respective fields such as author, publisher, series, and edition etc. lack consistency. And also because of some universities use commercial software systems for their OPAC, these systems do not allow to retrieve their bibliographic information from outside. Therefore, the team decided to connect libraries that use MySql databases (Ruhuna, Rajarata, Wayamba, and South Eastern) as a first step implementation.

Conclusion

Union catalogues have evolved to perform a central role between libraries' local systems and the Internet at large.

Results of this project is useful to both users and the participating libraries to know about the availability of a materials, in the particular library and its collection details, by searching through the title of the material or by putting the keyword of the subject. For the union catalogue of Sri Lankan University Libraries to serve as a gateway to library holdings, it must contain not only the locations of documents but also information of ability of a particular library to provide a particular service in the range from the classical ILL to the most advanced EDD (Electronic Document Delivery), it allows to request for the delivery of documents (copies of materials or book chapters) electronically in PDF format. Interlibrary loans (ILL) are transactions in which library materials are made available by one library to another. For the purpose of this, they also include the provision of copies as substitutes for loans of the original materials within applicable copyright restrictions. Interlibrary loans are transactions solely between libraries and not between libraries and individual patrons. Document Delivery Service (DDS) is one of the most important services in the library.

The Future Development

In future our team hopes to find the ways to add the library holdings of the remaining university libraries and other academic libraries in Sri Lanka to the union catalogue system.

Union catalogue hopes to extend its membership to other libraries in future. Union Catalogue should provide access to major resource centers and document suppliers via on-line requests. Conventional methods of building library collections should change, establishing regional document and information service centres should be considered as its novel objective each individual library and the collection of document should be in accordance with its specialized subjects, key disciplines. The better way for this is to co-operatively establish a networking system for resource sharing among libraries through joint acquisition and cataloguing, as well as inter library loan.

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