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BEST PRACTICES FOR EFFECTIVE USE OF E-RESOURCES

Best Practices for Effective Use of E-Resources



In memory of Late Librarian **Vaijnath Dadge**
(Ex-Librarian, Rajashi Shahu Mahavidyalay (Autonomous), Latur)

Editors

Gopal Sagar

Govind Ghogre

Dr.Vishnu Pawar



(In Memory of Late. Librarian Vaijanath Dadge)

“Best Practices for effective use of E-resources”

Editor's:

**Mr. Gopal Sagar
Dr. Govind Ghogre
Dr. Vishnu Pawar**

Best Practices for effective use of E-resources

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Dr. Govind Ghogre
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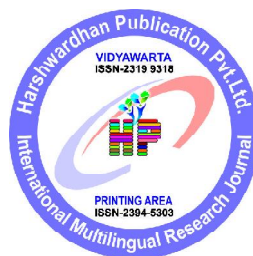
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Editorial Massege

We are happy to publish the E-book to honouring in memory of the Late Librarian Vaijanath Dadge [Ex-librarian, Rajarshi Shahu Mahavidyalaya (Autonomous), Latur]. His whole life was devoted to the development of the library and information science profession. We are always remembering his contribution towards the library profession.

The theme of the e-book is Best Practices for the effective use of E-resources. The main aim to publish this book is to know the various types of best practices provided by academic libraries for the effective use of e-resources. It will be a very useful source to start new and innovative practices in academic libraries. As we are aware that fast development in the field of Information and Communication Technology (ICT) have had an impact on the functioning of academic libraries. The developments in ICT have changed the users' expectations in different ways. So Academic librarians are building a collection and providing services to the end users as per their needs and demands. To meet the end user's demands effectively academic libraries need to identify and adopt good practices. The traditional concept of going in to the library and acquiring information by hand is gradually replaced by accessing information online. The collections of modern libraries are not restricted to print media only but libraries actively purchasing, subscribing and archiving the electronic resources due to its diverse nature like eco-friendly, time saving, cost saving, multi access, facility to access without physical presence in libraries etc.

E-resources available in libraries play and prominent role in facilitating access to the required information easily and expeditiously. Libraries are subscribing to millions of e-resources for users but the use of these resources appears to be very low. For increasing the use of those resources librar-

ies should adopt new strategies and techniques. With the help of this books librarians working in the academic libraries can know the varius best practices for the effective use of e-resources.

Mr. Gopal Sagar
Dr. Govind Ghogre
Dr. Vishnu Pawar



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**AN ANALYTICAL STUDY OF THE AVAILABILITY
AND ACCESSIBILITY OF E-RESOURCES VIA DIGI-
TAL LIBRARY**

**(w.r.t. INVERTIS UNIVERSITY,
BAREILLY, UTTAR PRADESH)**

SIMRAN MISHRA

Asst. Librarian,
Invertis University Bareilly

=====*****=====

Abstract – This study examines the usage of library collection & services provided in the university library for the users of Invertis University, Bareilly. The main aim of this study is to know the current status of automation of library in terms of digital library. ICT has created revolutionary in every field of education as well as Library & information science. Library activities introducing many applications and applying few techniques to new services to its users to access, search and browse through internet. In today's era, 'Digital library' technology allowed to freely open to its users without library staff. The role of Digital library requires four things – smart services, smart people, smart place & smart place. Smart library includes 24*7 services and auto services that are convenient for users. The challenge facing librarian & staff in providing

smooth & effective services. This study has selected survey research method and the tool is used the questionnaire to collect the data.

Keyword – University Library, 21st century library, Smart library, ICT, E- resources, computerization & digitalization.

INTRODUCTION

Information holds the key of success in modernising library services which ensure not only handling new ways of information but also aims to give new ways in the lifestyle of users. The advent of internet and development of ICT in library has recast the way of people seek & use information. The expansion of e- resources and their growing demand by the users put a challenge for library & librarian. Furthermore, most of the searching & sharing tools available on the internet provide extra power, ease and fun in seeking information but libraries have form their collections & services to meet user satisfaction. The library of the university is the heart of academic pursuits, directly so as regards its research work & indirectly as regards its teaching work which derives its life from research work. So that university libraries have solitary duty to provide information about libraries & library services as well as online catalogue, digital collection, e- database including different libraries services.

Committed to offer quality education Invertis university established in 1998 which has emerged a fully fledged university with 8 institutions and 6000 students under its name & offering a range of graduate & post graduate programme varying from management, technical, pharmacy, law, journalism, architecture & sciences with the use of technology & with a team of dedicated faculty & staff members as a consequence of Act no. 22 of the Up Legislation Assembly July, 2010.

Mainly Invertis University has facilitates with national & international journals, magazines & also membership of

OBJECTIVES OF THE STUDY

- To know the status of digitalization in library.
- To know the use of library collection & services.
- To assess the changing attitudes of users in using e- documents of digital library.
- To unearth various library resources & services offered at the university library.
- To find out the extent field use in open resources for the purpose of the digital library.
- To recommend methods for implementation of ICT & modernization of the university library.

REVIEW OF LITERATURE

Library should be equipped with WI-FI internet facilities so that enabled users can easily access into web OPAC site within the reachable area of the library building using their own mobile phones or smart devices (**Mohd. Dasuki, 2011**). There must one information resource centre in a glob where users can access all types of resources with ICT enabled via internet (**Brundaban Nahak, 2019**). ICT has become a boon for improvement in educational institutions as the major constituents of library like; physical books, hard copies of journals, newspaper, magazines are vanishing with the new format; e-format which does not require large space for storage. Now the library: Resource centre for a country where anybody can connect through the internet for upload & download audio text & video files so that equality in terms of accessibility to any of these types of resource can be maintained irrespective of gender, region, religion, economical background and the country origin of the users **P.S. Aithal (2016)**.

METHODOLOGY

A Survey is a research method used for collecting data from a predefined group of respondents to gain information and insights into various topics of internet.

IMPACT OF ICT IN DIGITAL LIBRARY

ICT enabled products and services of libraries, information changed the way the provision of information service is an integration of computer and communication technology that can be applied for storage and dissemination of information. They have changed the traditional viability of the library in distribution of services (**Ahmad & Fatima, 2009**).

- ICT made information creation in digital format possible.
- ICT made online access and file transfer possible.
- ICT made networking & sharing of information resource possible.
- 24*7 hours availability of library services.

ICT has brought unprecedented changes & transformation to academic library & information centres and its services. LIS such as OPAC, user services, reference service, bibliographic services, document delivery, inter-library loan can be provided more efficiently and effectively by using smart technology. As they offer convenient time, place, cost-effectiveness and most up-to-date dissemination and end users involvement in the library & information services process. The impact of smart technology characterized on information services by changes in format, content, and method of production and delivery of information products.

RECENT MODEL OF LIBRARIES

In coping with new challenges, LIS developed new concepts for marketing & advocacy of public as well as academic libraries. There is an abundant corpus of literature, surveys, case studies etc. about how public and academic libraries move forward to adapt new policies. They are also relevant for others reason: many components have affinities with the core features of the smart city.

Information commons- In term information commons has been used to describes specific services & tools e.g. library based open access journals & free available for digital library.

ies as well as the underlying core value & organizing principles like openness, unrestricted access & non-profit so on.

Information commons have been & still are a powerful concept of marketing & promotion of public & academic libraries for nearly 15 years now. In UK, public library have been transformed into new idea store with several learning, entertaining & cultural opportunities.

Learning centres- These models eliminates the focus of library from holding & silence reading, takes the place of modular learning, smart technologies & 'great good space' features which keep students at the centre of library.

Pedagogy has become a major tool for library design that facilitates autonomy, self-monitoring & learning processes focused on individual knowledge management.

Green library- The green library model provides a framework for large amount of work to be done in favour of reducing waste, recycling, saving, energy and so on. The model of green library is not only limited to educational libraries but its applicable to all types of libraries. Building & "clean" technologies and tools play an important role.

Global library- The Library products & services should be universal marked to small or big libraries of nook and corners of the world. This means that library management and marketing should developed a holistic approach ("global library").

E- RESOURCES IN DIGITAL LIBRARY

E- resources plays a major role in digital library. It gives awareness to the users, research scholars, faculty & staff etc. These e-resources are convenient to use, reachable at a reasonable cost and can be easily accessed from anywhere and by many users at the same time. Internet access is simple and efficient method for access and updating the documentation and interface of catalogue of all the libraries. E- resources are more useful due to inherent capabilities for manipulation & searching, providing information access is

cheaper to acquiring information resources, saving in storage and maintenance etc. & sometimes the electronic form is the only alternative..

RFID IN DIGITAL LIBRARY

RFID is really useful for academic library to share the information among them (IIL) through integrated library system. With the help of self check borrow & return of books can be automatically. This system in/out, involves installation of special software. A person using this system for borrowing books is presented with an option on a computer screen. The person has to identify himself with a code, which is preferably a personal identification code. When a book returned the check in/out system activate the surveillance bit. The RFID reader is a network-connected device that can be portable or permanently attached. It uses radio waves to transmit signals that activate the tag. Once activated, the tag sends a wave back to the antenna, where it is translated into data. The transponder is in the **RFID** tag itself. Readers are either fixed or mobile. Fixed readers are mounted in specific locations, and are used to track items as they move from one place to another, functioning kind of like a checkpoint. Fixed readers offer convenience and consistency, tracking tag movements automatically, without human involvement. Most Mobile Readers are hand held which provide you scanning for individual items.

FEATURES OF DIGITAL LIBRARY

- To increase knowledge & skills of the users & staff. Smart technology helps to reduce the digital divide in online world.
 - Digital library is an expansion of a verified model for the present scenario.
 - To provide digital reference for books & other materials (URLs, PDFs, PPTs, DOCs. Etc.)
 - Quick link for smart access.
 - To confidently control cyber issues, digital libraries offer skills
-

& resources and positive feature of online achievement.

- Cloud based & online library management system contains some of the high quality software that have desegregated automotive system which updates information by just scanning the **ISBN**.
- To enhance advanced search, access and retrieval of information.
- To based access to range of digitally available for educational purposes.
- Use of apps, e-books-exceeds expectations.
- Library blog, video & downloadable audio.
- Mobile access website, easy to use remote access.
- MARC records for e-journals in the library catalogue, Youth Helping Youth.

SCOPE & LIMITATION

This paper cover UG & PG students as well as library professional & staff of Investis university, Bareilly.

SAMPLE SIZE

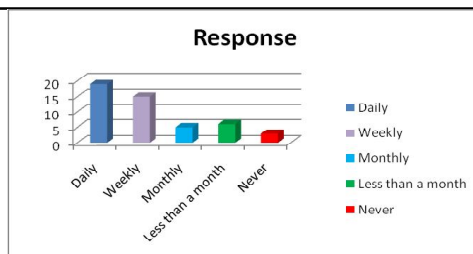
The total no. of 60 questionnaire were circulated among UG & PG students and Library staff. 48 filled up questionnaire were returned back.

EXPLORATION AND ANALYSIS OF DATA

1. Frequency visit of library users

S. No.	Frequency	Response	Percentage
1	Daily	19	39.58%
2	Weekly	15	31.25%
3	Monthly	5	10.41%
4	Less than a month	6	12.5%
5	Never	3	6.25%

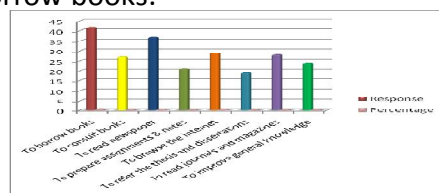
This table reveals the majority of users in which 39.58% (19 users out of 48 users) visit the library daily. 31.25% (15 users out of 48 users) users visit the library several times a week. 10.41% (5 users out of 48 users) users visit the library monthly, 12.5% (6 users out of 48 users) use the library less than once a month and least no of users 6.25% (3 users out of 48) never visit library.



2. Visit purpose of library

S. No.	Purpose	Response	Percentage
1	To borrow books	42	87.5%
2	To consult books	27	56.25%
3	To read newspaper	37	77.08%
4	To prepare assignments & notes	21	43.75%
5	To browse the internet	29	60.41%
6	To refer the thesis and dissertations	19	39.58%
7	To read journals and magazines	28	58.33%
8	To improve general knowledge	24	50%

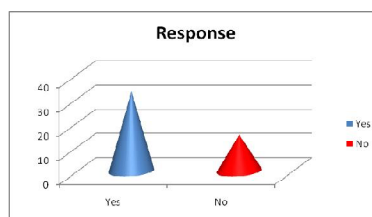
This table reveals the majority of students 87.5% of users visit library to borrow books.



3. Access of computers & electronics

S. No.	Status	Response	Percentage
1	Yes	33	68.75%
2	No	15	31.25%
3	Total	48	100%

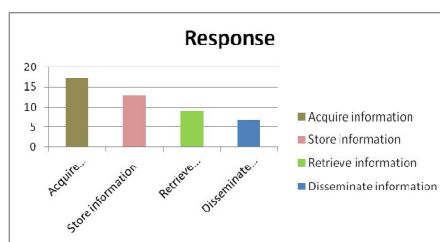
It shows the availability of computers & electronics. Which reveals that 33 (68.75%) respondents out of 48 were agreed & 15 (31.25%) respondents out of 48 were disagreed in this regard.



4. Purpose of used ICT in the library

S. No.	Purpose	Response	percentage
1	Acquire information	17	35.41%
2	Store information	13	27.08%
3	Retrieve information	9	18.75%
4	Disseminate information	7	14.58%

This table shows ICT is used for the purpose of acquire information with the response of 35.41% (17) from respondent, 27.08% (13) respondents responses for store for the information, 18.75% (9) respondents response for retrieve information & 14.58% (7) respondents response for disseminate the information out of 46 respondents.

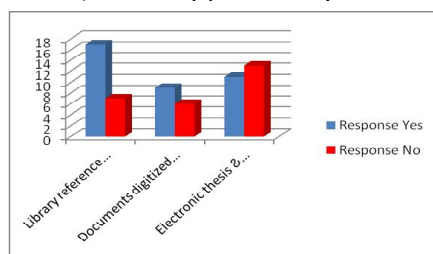


5. Digital facilities of Library

S. No.	Services	Response			
		Yes	Percentage	No	Percentage
1	Library reference service by email or the web	17	35.41%	7	14.58%
2	Documents digitized by the library staff	9	18.75%	6	12.5%
3	Electronic thesis & dissertation	11	22.91%	13	27.08%

This analysis shows the view of users on each digital services of library that the 35.41% (17 users out of 48 users) users retaliation to library reference service by the email & 14.58% (7 users out of 48 users) users appear deny with this facility. 18.75% (9 out of 48 users) users retaliation to documents digitized by staff & 12.5% (6 out of 48 users) users appear deny with this facility. 22.91% (11 out of 48 users) users retaliation to electronic thesis & dissertation & 27.08%

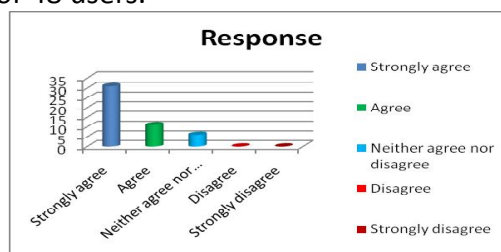
(13 out of 48 users) users appear deny with this facility.



6. Users perception to access real location in library via smart devices

S. No.	Answers	Response	Percentage
1	Strongly agree	31	64.58%
2	Agree	11	22.91%
3	Neither agree nor disagree	6	12.5%
4	Disagree	0	0
5	Strongly disagree	0	0

64.58% of users were strongly agree to download an application for the real & quick access in library, 22.91% of users were agree, 12.5% of users were neither agree nor disagree out of 48 users.



FINDINGS & SUGESSTION

- Most of the functions of library serving in traditional mode in the age of ICT, due to lack of skilled staff & lack of implementation of ICT.
- University library should conduct orientation programme & must be attended by all users.
- This study concludes recommendations of conducting such evaluation studies on the regular basis in order to keep the

library websites up-to-date & meet the expectations of its users.

- It is also suggested that library staff should know users requirements & improve their services accordingly.
- The library have to develop mobile application for their users because it helps them to get quick access for the library catalogue, library resources & services in their palm.

CONCLUSION

The presents study reveals developing stages of ICT in terms digital library infrastructure as well as automation which totally changed the library scenario. The rapid movement of ICT & their application to libraries, significant changes occurs in library, management and services. Due to the popularity of the Internet, users & libraries have to use social media as per their requirement. Social media helps to library in promoting services, resources, marketing of library products & communication with their users. As we all know today's world in a smart phone era & online environment so the libraries developing an application to make the library smart and as well as it is necessary for users. Evolution of digital library e-resources, automation etc. enforced the Librarian to change the traditional service into automated & online access services.

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<https://www.researchgate.net/publication/343442213>

www.science-sd.com



APPLICATIONS OF QR CODES IN THE LIBRARIES

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Asst. Librarian,

Christ University, Kanminike, Kumbalagodu, Bangalore,
Karnataka

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ABSTRACT

In this paper presents about QR code, how effectiveness and applications of QR code in the present scenario. The QR code is a matrix barcode readable smartphone with cameras. In the recent era, QR codes are top-rated and easy to use through mobile. These codes can be linked to the website, audio, video, or bank account for money transactions. The libraries can use this code for library guides about library facilities, events, magazines, or journal areas to point out online electronic holdings of print materials. These digital days have so much software to generate the QR code. Many libraries now use the QR code technology to give patrons instant access to their resources.

Keywords: QR Code, Technology, Mobile, Library service, Library use

1. INTRODUCTION

A QR code is a two-dimensional bar code resembling a tiny white square with black geometric shapes. Data are encoded in a QR code based on the placement and combination of the black spots, which are read by smartphones and Android devices with cameras. They are also known as mobile codes at times. We can refer to it as a matrix barcode that intelligent phones' cameras can read. Innovative technology is growing, and most libraries adopt new technology to disseminate information or services quickly. In that the QR code is viral in all the world, not only library its using every ware and every work because of its effectively get the information in a short period. In the same way that everyone already uses the internet, QR codes will soon be required to access any specific information. To make users' lives easier, libraries should take action to implement various areas and urge their patrons to do so as they are implemented.

The QR Code has a white background with black modules organized in a square arrangement. Text, a URL, or other data can be encoded information. Some of its constituent parts include a silent zone, finder patterns, alignment patterns, timing patterns, version information, data cells, and error correction.

2. HISTORY OF QR CODE

Denso Wave, a Toyota company, created the QR code as an upgrade to the existing barcodes for use in inventory management in 1994. In 2000, the QR codes became internationally standardized by ISO/IEC standards. By 2002, businesses were adopting the technology extensively in Japan, allowing customers to scan QR codes with their smartphones. The JIS-X-0510 standard for the Micro QR code was also established in 2004. Since its creation, the QR code has become widely used across various industries, including manufacturing, logistics, retail, healthcare, the life sciences, transportation, and office automation. The QR code is now being uti-

lized in mobile marketing as a quick and efficient approach to engage with customers and provide end users with content, thanks to the increasing expansion of smartphones. In the current environment, libraries are also quickly adopting this technology.

3. TYPES OF QR CODE

QR code have 6 types and discussed below

QR Code Model 1 and Model 2: This type of QR code is typical, and its structure is what other varieties of QR codes are based on. Model 1 was enhanced to provide a QR code that can be read cleanly even when it is warped in some way.

Micro QR Code: Micro QR Codes are a kind of QR codes with one position detection as their primary characteristic. Design and the printing size have been decreased.

IQR Code: IQR Code is a type of QR code available in both square and rectangular shapes, making it simple to print on cylindrical objects. Compared to a standard one, it holds more data in less space.

SQRC Code: SQRC, which stands for Secure Quick Response Code, protects encoded data by limiting readers' access to it.

FrameQR: Frame QR codes have a canvas space so that other forms can be added to the QR code and become more appealing to users and clients.

HCC2D Code: A 2D color barcode known as the HCC2D code is composed of square color cells in a matrix whose color is chosen from a color palette.

4. APPLICATIONS OF QR CODES IN THE LIBRARIES

In library and information science, QR codes can be used in a variety of ways. It is one of those technologies that satisfies user demands by making resources accessible via mobile phones and other portable devices. Many educational institutions are willing and some have actually adopted this technology in recent years. The QR code usage is every ware in the world as their comfort. To connect people with the

information they need, libraries use QR codes. Libraries today are entirely automated and are aware of user needs. QR Codes are 2D barcodes that a smartphone can quickly read. The wave of QR Codes has already reached the educational sector, which is currently popular in libraries. The QR code can be used in a library environment in a variety of ways, and a few applications are discussed below:

The Library Contact

Using this QR Code technology, one can quickly contact a certain library directly to acquire their email, phone number, address, and website.

Providing Access to Content of the Library Material

Providing quick and straightforward access to library resources for students and teachers is one of the simplest uses for QR codes. For successful use, a librarian might communicate recently added journals, new arrivals, or video links through mail or notice board.

To Promote the Library Service

All kinds of libraries have library services or facilities for users. Any information can be linked using QR codes. As a result, you can connect a QR Code to your library services or catalogue. All you need to do is make a Website URL QR Code and post it somewhere practical. Readers will quickly locate the library service or record after scanning it.

Library Events

Most libraries use QR codes for library events, including book exhibitions, book talks, event book displays, workshops on using electronic resources, etc. Users may quickly learn about the details of events and how to use them.

Make reading materials accessible as soon as possible

A QR Code can be used to link to helpful resources, reading recommendations, or an electronic version of a book or topic. Place the following QR Code on the relevant book-cases. After scanning, the reader is directed to the encoded

link, PDF, or landing page that contains all the information they require.

The library catalogue contains QR codes.

You may quickly discover any item you're looking for in the library catalogue by scanning the QR code and saving the title, location, and call number on your phone.

Library video tutorials

Specific YouTube films or generate a QR code to a playlist of videos on YouTube to make a terrific mobile home screen app that can be saved for convenient access, as needed.

Books due payment

The QR code is helpful to the student as a simple payment mechanism if they submit their books late and receive a fine.

Book Review

The library has come up with one of the best uses for QR codes. For individual novels, QR codes linking to reviews, trailers, or supplementary materials are developed. Then, stickers with the QR codes printed on them are affixed inside the book's cover. This is wonderful for students since they can scan the book and find out more information before deciding to read it.

Library guidelines and rules

Users have benefited much from embedding the QR Code with library guides, and they may read it in real time. Additionally, it lessens user annoyance and earns it in a nano-second.

URL links in brochures and noticeboards

Multiple URLs can be used to link to the primary websites and get more sophisticated information for a variety of purposes. If users want to read a specific article but don't have much time to go to the library and read physically, they can scan the mobile code and instantly download the

PDF.

Text messages for reference services and library staff contacts, as well as information for library users, are provided via QR codes.

5. Benefits of QR Code

- The library user friendly
- Environmental friendly and save the paper
- Save the time the users
- Increase customer satisfaction
- Store vast amount of data
- It is freely available
- It can be used by anybody at anytime, anywhere
- Anyone can generate the QR code.
- It is speedy to access the information embedded with the code.

6. Limitations of QR Code

- Only smart phone owners can effectively use QR code technology.
- Internet facility is must for QR code
- Security risk
- Lack of knowledge and experience with the QR code
- It requires a phone with a camera, which is expensive for average consumers to afford.

7. CONCLUSION

The QR code complements the design of more dynamic and exciting learning experiences by giving students a quick and straightforward way to access library resources. QR code technology is easy to implement, free to use, and growing in popularity. To provide value-added services, libraries must adapt their use of new technology in activities and services. Libraries recognize their importance as a source of information. The use of QR codes is simple, cost-free, and gaining popularity. Users can have a more involved learning experience by including them in library services.

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Digital Libraries as a Learning Resource

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Abstract:-

The purpose of this paper was to review and analyse the impact of a digital library system in education on potential readership. In recent years the concept of digital libraries is gaining lot of importance amongst library and information professionals and users as well. The utilization of digital libraries as learning resources include educational and community aspects. Information and Communications technology (ICT) has been widely applied in digital library services to

improve the knowledge and the public interest. Digital libraries have been emerged which will facilitate storage processing and accessibility of information much more efficiently than conventional libraries. Library with both digital collection and traditional, fixed media collection. Researchers can easily obtain the information of interest through internet surfing. It also includes digital materials that exist outside the physical and administrative bounds of any one digital library. The most important component of a digital library is the digital collection it holds or has access to. A digital library can have a wide range of resources.

1. Introduction:-

A digital library is a collection of resources, such as books, newspaper articles, images, and videos organized in an electronic format and available online in a centralized database. This means that students and teachers can access the resources using Internet-enabled devices such as tablets and laptops. The digital library was first popularized by the NSF/DARPA/NASA Digital Libraries in 1994. The term virtual library was initially used interchangeably with digital library, but is now primarily used for libraries that are virtual in other senses (such as libraries which aggregate distributed content). In the early days of digital libraries, there was discussion of the similarities and differences among the terms digital, virtual, and electronic.

Depending on the specific library, a user may be able to access magazine articles, books, papers, images, sound files, and videos. Some important digital libraries also serve as long term archives, such as arXiv and the Internet Archive. Digital libraries are beneficial to all researchers, scholarly institutions and the entire research community. Building world standard digital libraries, as powerhouses of knowledge, that are able to address the complex issues put forth by the technology push as well as the demand pull are fast catching up worldwide

attention. During the past five years India has been responding to this global trend quite proactively and positively and a number of institutions have started the initiatives in this direction. However building and maintaining digital libraries is a great challenge before library professionals.

What is digital Library ?

A digital library is a collection of documents in organized electronic form, available on the internet or on CD-ROM (compact-disk read-only memory) disks. Digital libraries will include all the processes and services that are the backbone and nervous system of libraries. However, such traditional processes, though forming the basis digital library work, will have to be revised and enhanced to accommodate the differences between new digital media and traditional fixed media. from an information retrieval point of view, it is a large database, for people who work on hypertext technology, it is one particular application of hypertext methods, for those working in wide-area information delivery, it is an application of the Web, and for library science, it is another step in the continuing automation of libraries that began over 25 years ago, for computer scientists and software developers, collections of computer algorithms or software programs are digital libraries. In fact, a digital library is all of these things, these different research approaches will all add to the development of digital libraries.

1.1 Definations:-

Digital Library Federation: in (1998) - "Digital libraries are organizations that provide the resources, including the specialized staff, to select, structure, offer intellectual access to, interpret, distribute, preserve the integrity of, and ensure the persistence over time of collections of digital works so that they are readily and economically available for use by a defined community or set of communities" (DLF, 1998)

Christine Borgman defined in her presentation at the LIDA

conference “Libraries in the Digital Age”, (Dubrovnik, 30 May 2005) digital libraries as follows:-

Systems that support searching, use, creation of content
Institutions with people, digital collections, and services
Repositories of digital data and documents, as a component
of cyber-infrastructure, e-research, e-science, e-social science,
e-learning... (Institutional repositories, open archives, data
collections (**Borgman, 2005**))

Sharifabadi (2006, p. 392) presents what could be regarded as a visionary approach, by explaining that “in the e-learning environment, digital libraries are considered as a federation of library services and collections that function together to create a digital learning community

1.2 Synthesis of the definitions

We have considered a number of definitions on digital library and applied an analysis of the definition to each of them. The result is an extraction of genera and differentia in each definition. After analyzing the genera extracted from the definitions, we realized that the genera can be grouped under four main concepts: Collection, Service, Organization, and System.

Table 1 Genera of digital libraries grouped in four groups

Collections	Services	Organization	Systems
Organized collections	Library Services	Organization	Systems
Managed collection	Dynamic Federated Structures	Organizational Organization	Tools
Focused collection	Information Storage	Socio Technical Systems	Electronic Resources
Electronic resources	Retrival Systems	Virtual Organization	Database on hypertext environment
Collection of collections	Distributed Envirment		Environment
Collection of information objects	Collection of Services		Library/Socio technical system
Collection of documents in electronic format	Group of Services		Networks of Technology

1.3 Why Digital library

1. The Digital library bring the library to the users
2. Information can be shared
3. Information is always available
4. Computer power is used for searching, and browsing

5. It is easier to keep information current

1.4 Five laws of library science with digital library

A digital library is the infrastructure, policies and procedures, and organizational, political and economic mechanisms necessary to enable access to and preservation of digital content. In some instances a digital library may be a new entity, but in most cases it will be the electronic or digital face of a traditional library and its activities will be embedded within current and evolving service structures. Ranganathan (1999) uses his five law to drive the classification and management of printed information. He started the classic five laws of library science as a spirit behind architecting and managing the libraries. We shall attempt to arrive at frameworks and structures that will help as build future digital information systems. The same five laws of library science may be rephrased as given below with somewhat different relative emphasis to guide us in architecting managing digital information systems of the 21st century:

- 1) Digital resources are for use.
- 2) Every user seeks digital resource.
- 3) Every digital resources needs it's user.
- 4) Save the time of the user.
- 5) Digital library is a growing organism worldwide

1.5 Fully developed digital library environment involves the following elements:-

1. Storage of digital content and metadata in an appropriate multimedia repository.
 2. The extraction or creation of metadata to assist in object viewing, Management and Presentation.
 3. Initial conversion of content from physical to digital form.
 4. Patron access through a browser or dedicated client.
 5. Content delivery via file transfer or streaming media.
 6. Client services for the browser, including repository querying and workflow.
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2. Objectives:- The major objectives of these papers are as follows:

- 1) It will provide cutting-edges facilities and services to support research, teaching, learning, and scholarly communication across disciplines.
- 2) To collect, organize and collate prints and digital information and disseminate at the point of care and for future use.
- 3) To provide seamless access for information.
- 4) To act as a gateway to digital and electronic information.
- 5) To develop into a single access point library.

2.1 Characteristics of digital libraries:-

The structured information in the digital library is called digital object which includes text, audio, video, image, computer programmes, graphics, and multimedia components in digital form. The digital library requires lots of digital technologies. The digital library :

Provides access to a very large information collection, both primary and secondary

Support multimedia components

Provides links to different digital objects

Supports and provides search and retrieval interface

Supports the traditional library mission of collection, development, organization, access and preservation. Important characteristics of a digital library are :

1. Digital collection – In the digital environment a digital library is expected to develop document collection in a digital format.

2. Technology – It is understood that a digital library will have digital material in its collection. But in the present day context, both digital and non-digital information belonging to a digital library are to be handled using digital technologies.

3. Work and Service – The professionals supposed to work in a digital library should have necessary training in handling

digital information in order to provide the optimum level of effective service.

4. Digital libraries are the digital face of traditional libraries that include both the digital collection and the traditional, fixed media collection, so they encompass both electronic and paper materials.

5. Digital libraries will also include digital material that exists outside the physical and administrative bounds of any one digital library.

6. However, such traditional processes, though forming the basic digital library work, will have to be revised and enhanced to accommodate the differences between new digital media and traditional fixed media.

7. Digital libraries will serve particular communities or constituencies as traditional libraries do now, though these communities may be widely dispersed throughout the network.

8. Digital libraries will require the skills of both librarians as well as computer professional to be viable.

2.2 Properties of a Digital Library

Table Describes Essential Properties of a Digital Library Ranging from Quite Traditional to Extremely Broad Views as Set Forth by Harter.

Table 2 : Potential Properties of a Digital Library

Narrow view based on traditional library	Broader view (a model position between the extremes)	Broader view (loosely based on current network)
Objects are located in a physical place	objects are located in logical place (may be distributed)	Object are not located in physical or logical place
Objects are information resources	Most of the objects are information resources	Object can be anything at all
Objects are selected on the basis of quality	Some of the objects are selected on the basis of quality	No quality control, no entry barriers
Objects are organised	Some aspects of authority control are present	No organization
Objects are subjected to authority control	Surrogates are created for some objects	No authority control
Surrogates of objects are created	Surrogates and objects are finely searchable	No surrogates of objects created
Surrogates are finely searchable	Concept of author is weakened	Only object are searchable
Authorship is an important concept	Objects change in a standardized way	No concept of author
Objects are fixed (do not change)	Disappearance of objects is controlled	Objects are fluid (can change at any time)
Objects are permanent	Access to some objects is limited to specific classes of users	Objects are transient (can disappear at any time)
Access to objects is limited to specific classes of user		Access to everything by everyone

2.3 Digital Library Services:- The major digital library services include

OPAC to web PAC

Digital Reference Service

Library Chat Rooms

Electronic Delivery Services

Virtual Library Tours

Ask-A-Librarian

Real Time Services

Bulletin Boards

Web-based User Education Web Forms

Frequently Asked Questions (FAQ)

Selective Dissemination of Information in Digital Library: Delivering Customized Contents

RSS Feeds

2.4 Digital Libraries: Indian Scenario Library Consortium in India

INDEST-AICTE Consortium (Govt.-funded)

CSIR E-Journals Consortium (Govt.-funded)

UGC Info net Consortium (Govt.-funded)

DAE Consortium (Govt.-funded)

MCIT Consortium (Govt.-funded)

IIM Libraries Consortium

FORSA Consortium

Scholarly Science Journals

Theses & Dissertations

Vidyanidhi

Shodhganga

N-LJST

3. Function of Digital Library

Digital libraries promise new societal benefits, starting with the elimination of the time and space constraints of traditional bricks-and-mortar libraries. Unlike libraries that occupy buildings accessible only to those who walk through their

doors, digital libraries reside on inter-networked data storage and computing systems that can be accessed by people located anywhere. At their full potential digital libraries will enable any citizen to access a considerable proportion of all human knowledge from any location. From an access vantage the Internet provides a preview of the possibilities. The role of a Digital Library is essentially to collect, manage, preserve and make accessible digital objects. The following are some of the function of digital library:

Access to large amounts of information to users wherever they are and whenever they need it.

Access to primary information sources.

Support multimedia content along with text

To provide a friendly interface to users.

To enhance advanced search, access, and retrieval of information.

To improve library operations.

Network accessibility on Intranet and Internet

User-friendly interface

Hypertext links for navigation

Client-server architecture

To avail of network facilities.

To protect owners of information.

To preserve unique collection through digitization.

To enable one to perform searches that is not practical manually.

3.1 Importance of digital library

1) Scholarly communication, education, research such as E-journals, e-books, and data sets, e-learning.

2) Access to cultural collections such as Cultural heritage, historical & special collections, museums, biodiversity.

3) E-governance such as Improved access to government policies, plans, procedures, rules and regulations

4) Archiving and preservation.

3.2 Aim/Purpose of digital Library

The aim of a digital library may be to expedite the systematic development of digital resources collection; the means to collect, store and organise information and knowledge in digital form.

To expedite the systematic development of procedures to collect, store, and organize, information in digital form.

To promote the efficient delivery of information.

Encourage co-operative efforts in research resources, computing, and communication networks.

Strengthen communication and collaboration between and among educational institutions.

Take a leadership role in the generation and dissemination of knowledge.

Purpose: The digital library is different from the regular library which is a collection of printed books and the like, the data in the digital library is located on the computer server that can be placed at a remote location, but can be accessed by users from a distance using a computer network. Digital libraries are expected to enhance reading interests and habits as information banks or reading resources centers. Learning institutions should manage digital libraries as they determine their successes in the world of education.

3.3 Examples of some digital libraries and how to access them:-

- 1) LOC - Library of Congress American Memory (<http://memory.loc.gov/ammem/>)
- 2) NSDL - National Science DL (<http://nsdl.org>)
- 3) IPL - Internet Public Library (<http://www.ipl.org>)
- 4) CDL - California DL (<http://www.cdlib.org>)
- 5) ADL – Alexandria DL (<http://www.alexandria.ucsb.edu>)
- 6) BL - British Library (<http://www.bl.uk/>)
- 7) NZDL – New Zealand DL (<http://www.nzdl.org/>)
- 8) Einstein Archives Online (<http://www.alberteinstein.info/>)

9) IEEE Digital library – (www.ieeedl.com)

10) ACM Digital library – (www.acmdl.org)

11) Networked Digital Library of Theses and Dissertations (NDLTD)-(<http://www.ndltd.org>).

12) ArticleCentral.com! (<http://www.articlecentral.com/>)

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13) Networked Computer Science Technical Reference Library (NCSTRL) - (<http://www.ncstrl.org>)

14) Israeli K12 Portal Snunit (<http://www.snunit.k12.il>).

3.4 Advantages of digitalLibraries

Digital library has certain characteristics, which make them different from traditional library. It has expansive and accurate system of searching with large volumes of text, image and audio-video resources. Digital libraries do not need physical space to build collection and it can be accessed from anywhere, any time. The user can get his/ her information on his own computer screen by using the Internet. Actually it is a network of multimedia system, which provides fingertip access.

The following are some of the major advantages of digital libraries.

No physical boundary. The user of a digital library need not to go to the library physically; people from all over the world can gain access to the same information, as long as an Internet connection is available.

Round the clock availability. People can gain access to the information at any time, night or day.

Structured approach. Digital libraries provide access to much richer content in a more structured manner, i.e. we can easily move from the catalog to the particular book then to a

particular chapter and so on.

Information retrieval. The user is able to use any search term (word, phrase, title, name, subject) to search the entire collection. Digital libraries can provide very user friendly interfaces, giving clickable access to its resources.

Preservation and conservation. Another important issue is preservation - keeping digital information available in perpetuity. In the preservation of digital materials, the real issue is technical obsolescence. Technical obsolescence in the digital age is like the deterioration of paper in the paper age. Libraries in the pre-digital era had to worry about climate control and the de-acidification of books, but the preservation of digital information will mean constantly coming up with new technical solutions.

Networking. A particular digital library can provide a link to any other resources of other digital libraries very easily; thus a seamlessly integrated resource sharing can be achieved.

Cost. In theory, the cost of maintaining a digital library is lower than that of a traditional library. A traditional library must spend large sums of money paying for staff, book maintenance, rent, and additional books. Although digital libraries do away with these fees, it has since been found that digital libraries can be no less expensive in their own way to operate. Digital libraries can and do incur large costs for the conversion of print materials into digital format, for the technical skills of staff to maintain them, and for the costs of maintaining online access (i.e. servers, bandwidth costs, etc.). Also, the information in a digital library must often be "migrated" every few years to the latest digital media. This process can incur very large costs in hardware and skilled personnel.

And **Chore and Salwe (2010)** also give the some meyor benefits of digital library as:

(1) Preserve the valuable documents, rare and special collections of libraries, archives and museums.

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- (2) Protected information source.
 - (3) Facility for the downloading and printing.
 - (4) Provide faster access to the holding of libraries worldwide through automated better catalogues.
 - (5) Help to locate both physical and digitized versions of scholarly articles and books through single interface.
 - (6) Search optimization, simultaneous searches of the Internet make possible, preparing commercial databases and library collections.
 - (7) The user can peruse them instant.
 - (8) Cross references to other documents.
 - (9) Making short the chain from author to user.
 - (10) Save preparation/ conservation cost, space and money.
 - (11) Digital technology affords multiple, simultaneous user from a single original which are not possible for materials stored in any other forms.
 - (12) Full text search.

3.5 Disadvantages/Limitation of digital library

New technology has brought many advantages for digital library, but simultaneously it also has certain disadvantage

- 1) Costly affair.
 - 2) Technology obsolescence (Hardware & Software).
 - 3) Storage media relate.
 - 4) Dominance of data creators and publishers.
 - 5) Trained manpower.
 - 6) User education and training.
 - 7) Security against hacking & sabotage.
 - 8) Lack of screening or validation
 - 9) Lack of preservation of a fixed copy (for the record and for duplicating scientific research)
 - 10) Lack of preservation of “best in class”
 - 11) Difficulty in knowing and locating everything that is available, and differentiating valuable from useless information.
 - 12) Job loss for traditional publishers and librarians
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spread and many become hidden.

4. Future trends of digital library

With increasing technology in the world, it is also important for librarians to learn and adopt new technologies and help the end users to use and make them available their valuable collection by the means of internet through digital library. As the technology keeps on improving new technologies comes into existence, leading to technical and operational challenges for libraries, digital library, archives and museums. For which they have to migrate to new technologies now and then. So, librarians should learn and adopt new changes in the technology and understand their feature so that best software can be selected from all the available software. This will lead to improve performance and effectiveness of all those repositories in future and many new features can be added to the software. Digital libraries of the future will give access to a large variety of multimedia and multitype documents created by integrating content from many different heterogeneous sources that range from repositories of text, images, and audiovideo, to scientific data archives, and databases.

Almost every single institution is hosting its own. Sometimes they even use their own servers and customized software to provide information to users. Since it is not possible for an information provider to host every single information of a specific topic locally at its server, a portal might be the right solution. New DLs are also required to offer a much richer set of services to their users than in the past. In particular, they must support the activities of their users by providing functionalities that may range from general utilities, like annotation, summarization or co-operative work support, to very audience-specific functions, like map processing, semantic analysis of images, or simulation. In the new DLs users are not only consumers but also producers of information. By elaborating information gathered through the DL

they can create new information objects that are published in the DL, thus enriching its content.

There was an overwhelmingly positive reaction to the impact of digital developments on the library over the past five to ten years, as it has in many ways facilitated the librarian's role as well as the user experience. Information is available at any time and place, at the click of a button, as is assistance from the library. majority of librarians found positive impacts on discovery, collection development, developing new skills, and also relationships with colleagues, repurposing space, and investment in new equipment. There is access to many more resources online, and the development of new discovery tools has made access to these resources easier than ever before. There is also a distinction between the increased use of the library as a physical space, and that of library collections.

5. Conclusion

There will be continuing expansion of digital library activities. LIS and computer science professionals face challenges that will lead to improved systems. Digital libraries will build upon work being done in the information and data management area. Digital libraries provide an effective means to distribute learning resources to students and other users. Planning a digital library requires thoughtful analysis of the organization and its users, and an acknowledgement of the cost and the need for infrastructure and ongoing maintenance (Adams, Jansen, and Smith 1999). Digital libraries have reduced the burden of librarians as well as students. The concept of the digital library Software is quite old but it is getting popular with the latest technologies used in it. It is necessary to stay updated with the new technologies and which will enhance the learning of the students and upgrade their skills and confidence to face the challenges. Digital libraries are no longer theoretical constructs, but reality. They are driven by user groups or communities. As with most other technical

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developments in libraries over the years, we will have to move forward in small, manageable, evolutionary steps, rather than in an rapid revolutionary manner.

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DIGITAL LIBRARY

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ABSTRACT

Digital library is essentially a fully automated information system with all resources in digital form. Building a digital library is expensive and resource intensive. Before embarking on such a venture, it is important to consider some basic principles underlying the design, implementation, and maintenance of any digital library. Digital libraries offer opportunities for e-learning that are not available in their physical counterparts. Digital libraries complement other learning environments, such as those provided in distance education and courses offered online. Like e-Learning environments, they provide flexibility of time and place. Digital libraries have the potential to offer unprecedented resources to support e-Learning. This paper discusses what is e-Learning, need of e-Learning, how it can be supported by the library environment and the role of digital library in e-Learning.

INTRODUCTION

The emergence of new technologies and user's de-

mands had great impact on the present and future libraries. The format of documents and form of services had been changing at a very fast speed with the advent of new tools and technology. "A Digital Library is a library which has all the information in electronic form and having electronic devices to have access to the digitized information". Use of technology in learning, in the true sense, started around the beginning of this century with the invention of films and motion pictures. During World War II, the world witnessed real use of technology in learning when U.S. Army used training films to educate their army-men and to maintain consistency in U.S. based training. Since then large scale developments have taken place at different fronts like academic, government and corporate. In the sixties, early "teaching machines" and "programmed tests" paved the way for embryonic computer-based training. Digital library : It is a later stage of the electronic library. In a digital library, high-speed optical fiber is used for LAN and the access is over WAN and provide a wide range of internet-based services i.e. audio and video conferencing and like other. The majority of the holding of a digital library is in the computer readable form and also acts as a point of access to other online sources.

CONCEPT OF DIGITAL LIBRARY

The digital library is most recent term being used for the library without books, libraries having information in electronic format and providing access in the digital formats.

DEFINITIONS

· According to LESK

"A collection of information that is both digitized and organized and which offers a capability beyond those of traditional library."

· According to GRIFFEN

"An organized collection of multimedia data with the information management methods that represent the data

as useful information and knowledge to people in a variety of social and organizational contexts.”

MEANING OF DIGITAL LIBRARY

Digital library are those libraries which are fully automated and all resources are in digital form and the access to the information available is provided to a remote user as well as conventional user electronically.

KEY COMPONENTS

- Geographically Distributed Digital Information Collection
- Geographically Distributed Users.
- Information Represented by a Variety of Digital Objects.
- Large and Diverse Collections.
- Seamless Access.

CHARACTERISTICS OF DIGITAL LIBRARIES

- The storage of information in digital form.
- Usage of communication networks to access and obtain information.
- Copying either by downloading or online/ off line printing form master file.

OBJECTIVES

- To capture, Store, Manipulate, and Distribute Information.
- To have large number of databases in CDs.
- To provide facility for networking and resources sharing.
- To access machine readable national and international journals.
- To digitize the documents for preservation and for space saving.

FUNCTION OF DIGITAL LIBRARIES

To provide user friendly interface to information; To enhance advanced search & retrieval of information; Repository service, where Knowledge can be store, index & Retrieve; Act as a get-way of knowledge in multimedia format; Digital Collection can be storage, manage & Retrieve.

- To collect, store, organize and access information in digital
-

form via communication channels.

- To save time of library staff by avoiding routine job.
- To serve widely dispersed communities throughout the network.
- To reduce the cost involved in various library activities.
- To digitize documents for preservation and for space saving.
- To introduce and provide user friendly interface and new services.
- To support advance search and retrieval to enable greater access for information.

ADVANTAGES OF DIGITAL LIBRARIES

- No Physical Boundary.
- Round the Clock Availability.
- Multiple Accesses.
- Information Retrieval.
- Saving the Space.
- To provide Facility for Downloading and Printing.

FACTOR RESPONSIBLE FOR EMERGENCE OF DIGITAL LIBRARIES

- Well-informed and Computer Literate User.
- Lack of User Concerned Material.
- Lack of Appropriate Library Budget.
- To Provide Access to Resources.

ROLE OF DIGITAL LIBRARIES IN E-LEARNING

According to Gary Marchionini (1995), libraries serve three roles in the learning process-

- **Sharing valuable resources** – Digital library plays a vital role here by allowing several information seekers to access materials simultaneously, regardless of their physical location.
 - **Preserving and organizing artifacts & ideas** – Million books project is a live example of a digital library striving for preservation of old artifacts of intellectual importance by archiving their soft copies. The material is digitized with the help of scanning devices.
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· **Bringing people and idea together** – Digital libraries offer diverse information resources shared by groups of learners, irrespective of physical space and time. Digital libraries bring people together with different learning missions.

CONCLUSION

In short we can say that digital libraries can save the time and money of the society by its services. We can use this time and money in other developmental work. So digital libraries play a major roll in the development of a country. Digitization has opened up new audiences and services for libraries, and it needs to be integrated into the plans and policies of any institution to maximize its effectiveness. Digitization is a complex process with many crucial dependencies between different stages over time. Utilizing a holistic life-cycle approach for digitization initiatives will help develop sustainable and successful project. Digital library services are an essential component of quality e-Learning system. As access to internet-based course grows, an increasing number of e-Learners are dispersed around the globe, often in parts of the world where physical access to the collections of large academic and research libraries is impossible. These learners are largely dependent on the quality and usefulness of services that the digital library can offer electronically.

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Acquisition of E-Resources: An Overview

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Abstract

Developments in Information and Communication Technology ICT have greatly changed. The methods of information handling the paper attempts to provide overview of electronic resources and services. This paper describe the type of e- resources like ebooks e journals E- databases CD ROMs etc. and also describe steps in acquiring E-Resources.

Keywords: E-Resources, Acquisition, Subscribing, Licencing.

1. Introduction:

21st century is an era of information there is information explosion and also accelerating need for information. Most users of the libraries are technology savvy and growing up with computer science internet. Growth in internet communication technology and electronic publishing has opened vistas in searching and accessing information. Advances web

and associated technology urge for information access demand from user's future reach non- print information sources all lead to the present trend of hybrid libraries.

2. Electronic resources:

Electronic resources are those which are in electronic or in the digital form stored on a magnetic or on optical media or accessible through the web. till 1970's they were mostly found on magnetic media or some of them where available online. electronic resources are regarded as the mines of information that are explode through ICT devices refined and resigned and more often store in the cyber space in the most concrete and compact form and can be accessed simultaneously from infinite prints by a great number of audience. The phrase "electronic resources" has broadly been defined as information accessed through computers or through similar electronic gadgets. Hereafter, in simple words a digital collection can be formed by different matters, information being originally produced in an electronic format or digitized starting from a printed original. The digital collection includes following items

3. Type of electronic resources:

3.1 Electronic journals:

E- Journals have helped publishers Scholars and users to disseminate information much more quickly than was previously possible. The users can search e journals by title.

3.2 E- Books:

Libraries provide access to electronic books every major publisher offer access to ebooks Springer yells wear really Taylor and Francis are some examples Safari 24 * 7 Knovel Net library are some of the best known ebooks collections in the world today.

3.3 Electronic images:

Use to Adventure of e images facility image databases are used specifically in subject which has history geography

Medical Sciences etc. the libraries develop in house digital images collections and also provide access to selected external data bases to their clientele.

3.4 **Electronic music and sound collections:**

E- Music and sound collection are creating their importance in multimedia libraries digital sound recording collections are facilitated by libraries.

3.5 **Electronic references:**

E- Reference sources can be compared of following type of sources like dictionary, translators, encyclopaedia directories, glossaries, virtual newspapers etc.

3.6 **Electronic databases:**

Bibliographic database- according to P. S. Kauwatra Bibliography database contains a file of document description that is records one can use for deciding whether to search for the document itself. Eg-COMPENDEX, MEDLARS.

***Non Bibliographic Database:** it is also referred as data banks of fact banks data Bank are used by number of Indian Institutes for their information storage processing and retrieval. Eg- encyclopaedia of associations database by Gale research company.

3.7 **CD-ROM:**

Compact disc read only memory is a pressed compact disc that contains data accessible to but not writable by a computer for data storage and music playback.

The 1985 'Yellow Book' started development by Sony and Philips how your many CD- ROM bound resources are available on internet today.

3.8 **E- Resources consortia:**

The E- Resources consortia can play an important role in acquiring licenses and sharing electronic resources by acting as platforms for promoting activities and programs in the area of electronic resources sharing.

3.9 **E- Newspaper:**

An E-newspaper is also known as online newspaper or web newspaper that exists on the internet. E-newspaper is used for making clipping the article in soft copy. Online newspapers are much like hard copy newspaper and have the same legal boundaries such as laws reading label privacy and copyright. E- Newspaper is a self-contained reusable and refreshable version of a newspaper that acquires and holds all information electronically.

Why Electronic Collection:

Electronic Resources play a vital role in the field of library and information centers to provide better services and easy access to library. Following are the considerable points are given below.

Multi-access: Multiple users can use the information at a time with their terminals. The accessibility of information is made available 24x7.

Speed: Electronic resources are quicker to browse or search extract, integrate information into other material and to cross search or reference between different publications.

Functionality: E- Resources will allow the users to approach the publication by click of the mouse on search mode.

Content: E resources can contain a vast amount of information, but more importantly the material can consist of mixed media i.e. image, video, audio and animation which could not be replicated in print.

Storage: The ability to store and retrieval large amounts of information.

4. Steps in Acquiring E- Resources:**4.1 Identifying Potential E-Resources:**

Identification potential resources can begin with getting a preliminary recommendation from users such as teachers, researchers, students and other members of the user community alternatively user's service product catalogue product reviews can be used as for this purpose.

4.2 Deciding to procure from whom:

Printed sources whether you procure it from publisher's distributor reseller you get the same content this cannot be guaranteed with E resources it is always appropriate to licence core resources through publisher and non-core once through aggregators for better pricing.

4.3 Trial Access:

Ideally no e resource should be procured without availing a trial or user evaluation the pre subscription or trial access is normally honoured by most of the Publishers' and aggregators are trade partners through some need Persuasion on the part of library to comply the trial serves essentially two purposes helping the users community to make an informed decision on the use and facility enabling the librarian to monitor the internet in the resource by the user community.

4.4 Subscribing or Licencing:

Library may proceed with procuring the E resources on their own or through Consortium this would be based on the constructive evaluation feedback provided by the user community during trial these are different mode to enable access to e resources like access only mode or subscription with arrival right for the subscribed content.

Library should consult their libraries Consortium authorities and Finance experts before selecting mode of enabling access. Inclusion of all stake holders like finance legal and management /administrators would avoid possible delays and confusions in completing the process of procuring the E resources.

4.5 Conducting user awareness and training programs:

Many users may not participate in the pre subscription awareness session library should devise series of training sessions on each of the E sources procure to reach out to different user at their convenience substations maybe con-

ducted by library staff representative or specialist of trade partners etc. there should also be easy to learn self-help training packages available for access on the library website to help any interested user who would not attend the training sessions.

4.6 Maintaining Help Lines:

There should be profession in the library who would be available for help and assistance in case any user faces difficulty in accessing the resources the staff should also monitor the access facility of e resources continuously changes in the Local Network configuration should be monitored regularly and promptly communicated to publishers about IP password changes if any for on interrupted access of resources library staff should also interact with computer staff to keep the internet access and other library computing infrastructure functioning throughout the working hours (and even 24 hours in case of campuses where students stay) without creating any inconvenience to users.

4.7 Monitoring Usages:

this is the most difficult aspect in IR resources handling for the library as in many cases they have to relay account the complaints I balls and clicks may not be reading at all some Institutions thus access usage based on the log analysis for publishers I piece from the campus computing facility uses is done by users who are many and varied and for any external agency to access use has to bear with such agency to such limitations uses statistics to offer the library some tangible inputs about the trends in uses and provide interesting insights for collection development sometimes vocal users Rise and necessary demands and that can be difficultly counted with the aid of uses statistics.

5. Conclusion:

Electronic resources being critical part of library collections generated a lot of debate over its access storage Pres-

ervation and corporate complaints there is an immediate need for library and information professionals to understand all aspects of the e resources and get maximum uses from the IR resources at least possible cost for the organisation without any copyright related issues.

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**Institu-
tional Re-
pository:
descriptive
study**

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Abstract: - The institutional repository (IR) is a modern concept that captures and makes available through internet and it intranets the institutional research output and other rel-

evant documents to the users by way of digitizing the output. The IR's have already started emerging in India. This paper highlights the aims, objectives, benefits; advantages and importance. Most of the repositories are using open source information repository software like e-prints, d-space, and Fedora. It is observed that generally documents like theses, dissertations, seminar papers, journal articles, etc., are being found more in the repositories. The study showed, inter alia, that many students principally used the libraries as a place to prepare for examinations and to do their assignments. Recommended course textbooks, reference books and past examination questions were the most sought after materials among the respondents. Few of them had eyes for fiction and periodical resources. Even though majority of the tertiary students find the stock in the libraries to be fairly old, it did not ward them off from using the libraries. It is instructive that if the libraries continue to hold on to old books, it could lead to low patronage of the libraries in the advent of new platforms that have the potential to make large amount of electronic information available to users.

Keywords:- Information repository software

Introduction:-

Universities and research institutes are the main information and knowledge generation sources. Though new ideas and thoughts emanate everyday from these knowledge products centers through seminars, discussion assignments and working papers, only a small portion of them reaches the public and other peer institutes. As professional Journals and working papers are the major information dissemination vehicles, most activities that take place inside the universities and research organizations go unnoticed. Even the information that gets disseminated through professional journals fails to reach many serious researchers as most of them do not have access to costly scientific journals. To control this

unnecessary waste of intellectual output the organization should publish their intellectual output online so that it can be accessed by anyone from any place on the web. That the organization should create mechanisms that can capture/store/disseminate the various information products generated by the researchers and academicians. This kind of self publication software/hardware infrastructure created by an organization is called an online 'Institutional Repository'. A repository will contain the necessary tools that help the researchers of an organization self publish their research output. It also has the potential to enhance the prestige of the organization by attracting the attention of other researchers worldwide.

Institutional Repository

An Institutional Repository is a database with a set of services to capture, store, index, preserve and redistributes a university's scholarly research in digital formats.

The SPARC Organization defines Institutional Repository as follows:

- Institutional defined
- Scholarly
- Cumulative and perpetual
- Open and Interoperable

When we say Institutional Repositories are 'open' and 'interoperable' – it means they are OAI-Complaint and allow open access to scholarly research.

Clifford Lynch defines IRs in the following way–

"A University- based institutional repository is a set of services that a university offers to the members of its community for the management and dissemination of digital materials created by the institution and its community members. It is most essential an organizational commitment to the stewardship of these digital materials, including long-term preservation where appropriate, as well as organization and

access or distribution.

Institutional Repository (IR) is online locus for collecting, preserving and disseminating the intellectual output of institution in digital form. This would include material such as research journal article, preprints & post prints (peer review), digital version of Thesis & dissertation, digital assets generated by normal academic life eg.- administrative documents, course notes or learning objects.

In 1991 the first centralized archive was established at the Los Alamos National Laboratory. Here the post prints (the peer-reviewed version of each article) is deposited. In most cases these are in the form of the author's final version rather than the publisher's formatted file though some publishers do permit the use of their own copyrighted version for this purpose. The effect is that the research articles in the disciplines covered by archive are available to anyone who wished to read them even if their own institution could not afford to purchase the Journals in which they were published.

A Preprint – 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. A Preprint had been in place for many years in print form, as the digital age arrived the practice simply migrated from paper to electronic form.

Formation of IR is not an alternative to publishing in learned journals but an adjunct, a complementary activity where an author publishes his or her article in whatever journals he/she chooses and then simply archives a copy in IR. This means depositing the file, which is usually the author's final version of the article after peer review, has been completed in repository. There are two types of such archives.

1. The article that are tagged as peer –reviewed (post prints)

2. Pre print drafts.

Sometime there is concern about 'Quality' of these archived papers. Of course, some disciplines use preprints much more extensively than others but the pre-peer review articles are tagged as such. Some institutional Repositories may contain lots of other type of materials also but with respect to the research literature what is deposited as post print is a 'copy' of fully peer-reviewed article that was to be published in the traditional way in a conventional, quality- controlled journal. Post prints are not some kind of self-published, second-rate alternative to conventional journal articles; they are those same articles.

The issue of copyright is a major stumbling block for authors. Authors feel it will contravening the agreement if they archive it in IR. It is sure if they deposit the publisher's own file (the PDF file supplied by the publisher to the author and containing the final formatting and layout assigned by the publisher) without permission then this would be in contravention of copyright. The publisher has not copyrighted the author's final version. In most of the cases the publisher expressly permits an author to deposit their own final draft. (The version that was finally submitted to the publisher after peer review revision and recommendation has been incorporated.)

The benefit to author is to make their work open access is the enhanced citation. We know that the authors publish primarily to communicate their research findings to their peers. Depositing an article at the time of publishing means that the inevitable delay at the publisher before the article finally appears in the journal is immaterial. The article is already available to anyone who wants to read it & use it for their work. The research cycle is thus shortened.

An Institutional Repository is a secure storage location for working documents or for research data. It becomes

the mediator for a one-input, many-outputs scenario, where a researcher can retrieve whichever elements of his or her own research record are needed for a task-in-hand. It can also provide the home for research data that cannot be published in traditional journal format but which supports research findings and which the author would like to make available to peers and colleagues' data such as very large datasets, video files, graphical files of various formats, audio files and mixed media output.

The benefits for the institutions are substantial. Institution can enhance the visibility. They can get access to information about their employees' research records, research grant application and fulfillment. IR provides a permanent record of that institution. An archive can also serve as a marketing tool for the institution. A repository provides a place for all the digital output of that institution, so not just research articles but digital records of academic and cultural life in that institution can be stored there.

Use of Institutional Repositories

Universities and Research Libraries around the world use Institutional Repository in the following way-

Scholarly Communication

Storing Learning Materials & courseware

Managing collection of research documents

Preserving digital materials for the long term

Adding to the universities prestige by showcasing its academic research

Knowledge Management

Research assessment

Encouraging open access to scholarly research

Housing digitized collection.

Steps in Building an IR

Learning about the process by reading about and examining other institutional repositories.

Developing a service definition and service plan-

- conduct a needs assessment of your University
- Develop a cost Model based on this plan
- Create a schedule and timeline
- Develop policies that govern content acquisition, distribution and maintenance.

Assembling a team

Technology- choose & install software platform

Marketing

Launching a service

Running a service

Problems and Hurdles

Adoption rate by academics

Providing for sustainability

Developing Policies

Managing Intellectual property rights

University support

Cost Management

Digital Preservation

Identifying key stakeholders

Learning about the process by reading about and examining other institutional repositories-

Sometime it is helpful to see how other Universities and cultural institutions have organized or presented their repositories. The following sites link to a variety of online repositories and archives-

- e-prints list of UK repositories

<http://www.rdn.ac.uk/projects/eprints.uk/repositories/>

- The open archives forum list of repositories

www.Oaforum.org/Oaf_db/list_db/list_repositories.php

- SPARC Europe, list of European Institutional Repositories
-

Developing Your Service Model

It's important to define precisely how you intend to use the system and what type of service you will offer. An Institutional Repository is a set of services – for those who deposit content, the academic and research communities you include and for end users. To create the service model you have to answer the following questions:

- What is the service Mission?
- What kind of content will you accept?
- Who are the key users?
- Who are the key stakeholders?
- What services would you offer if you had unlimited resources?
- What can you afford to offer?
- Will you charge for services?
- What responsibilities will the Library bear versus the content community?
- What are your top service priorities?
- What are the short-term priorities and long-term priorities?

A Detailed description of the Services –

S.No.	Core Services (free)	Premium Services (fee-based)
1	Setting up academic departments and other content communities in the Institutional Repositories.	
2	Metadata Services: Consultation	Metadata Services: Custom Metadata Creation
3	Training and user support for content submitters	Document services – Scanning, OCR, Reformatting files
4	Storage Space Allocation: basic	Extra Storage Space
5	Batch import of Data: ○ Historic collection ○ Newly digitized collection	
6	IT Systems Management	
7	Other	

Each Institutional repository service organizes content in a way to suit its Institution's unique culture and academic organizations. How you organize content communities depends on the interest and allegiances of your academics.

Conducting a Needs Assessment Survey

A key foundation to your service plan is to understand the unique needs of your scholarly community

How scholarly works are currently published or stored on campus?

Who are the key stakeholders to include in your planning?

What IT resources are available on Campus?

What are academic perceptions of the issues and problems of managing digital material?

Means of Surveying

Informal Survey – Include face-to-face meetings with individual academics & administrators, e-mail contacts and monitoring existing web based publishing services on campus.

Formal Survey – Include paper-based or online Surveys of academics and staff as well as formal presentations and Q & A Sessions with departments & academic groups.

Assembling a Team

At the early stage you have to identify staff responsible for each of the following task –

Administering academic & staff surveys or interviews

Conducting a needs assessment

Synthesizing the results of surveys

Developing your Service model

Developing your cost model

Conducting resource assessment

- Performing gap analysis

- Developing requirements document

Developing presentations for staff, academics and potential funders.

These staff members constitute the 'Implementation Planning Team'. Team representation should include personnel from the Libraries senior administration with budgetary responsibility, the archivist and someone whose role is to interact regularly with academics.

Institutional Repository Software**Components of an IRS –**

Interface for adding content to the system

Interface for searching / browsing / retrieving content

Content database for storing content

Administrative Interface to support collection management and preservation activities.

Basic Technical Building Blocks of an IR

Windows or Unix / Linux Servers

Web Server, such as Apache and related web application tools

Database such as MySQL, DB2, Oracle, Postgres, SQL Server

Institutional Repository Software.

When examining a software platform, look for the following features:-

1. File formats supported: text, images, datasets, video, audio etc.
2. Metadata standards (descriptive, technical, preservation rights)
3. Interoperability: OAI Compliances, Z39.50, SRW, etc.
4. Permanent item address or locator
5. Search browse of metadata
6. Full-text search
7. Work flow, Submission for content approval
8. User authentication and authorization
9. Back-end: Content contributor, editor, administrator, and metadata editor.
10. Front-end: end-user access to content.

Customization: API (Application Programming Interface) for customizing the software.

Software Developer / Distributor

Free vs. commercial software (license, subscription fees)

Open source vs. proprietary

Technical Support available

· For fee vs. free

- By phone
- By e-mail
- Via online forums

Leading Institutional Repository Software's

Archimedes

Bepress

CDSware

Contented

Dspace

Imprints

Fedora

Greenstone

Open repository

Technical Issues for running a Service

Service availability

Scalability

Backup & recovery

System Maintenance

Extensibility

Customization

Data loading

Technology Cost Consideration

Software costs

Hardware, Servers

Operational Staff

Programming Staff

Backup & Recovery

Preservation

Marketing

As you begin to build a service, it is critical to communicate how the service benefits the user community.

Potential Audience

Academics – Some academics are already aware of the benefits of institutional Repositories, others are less well versed in the new technology and the ways that it can help them manage digital assets.

Administration – Administrative staff within the host institu-

tion is vitally important for sustainability.

External Audience – This includes both academics and central administrators.

Marketing Ways

1. Using a Top-Down Approach – A Top-Down approach focuses on vice chancellors, Deans and Administrators. Use word-of-mouth and direct influence. In this approach, create the institutions directive to build a digital repository, spreading the word to academics and staff.
2. Using a Bottom-up approach – A bottom-up approach pitches the service to academics, staff, communities that publish on your university website, technical staff in department and groups dealing with publication etc. Here you prove the need for an Institutional Repositories.
3. Raising awareness at the university – Present your Service in face-to-face meetings on Campus- with communities, departments, individuals, by phone, in person to staff academics, IT departments etc.
4. Keeping in touch with content Communities – Survey content communities annually to get feedback, gather new requirements etc.

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INSTITUTIONAL REPOSITORY : ON OVERVIEW

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ABSTRACT

The institutional repository (IR) is a modern concept that captures and makes available through internet and it intranets the institutional research output and other relevant documents to the users by way of digitizing the output. The IR's have already started emerging in India. This paper highlights the aims, objectives, benefits, advantages and importance of IR. Most of the repositories are using open source information repository software like e-prints, d-space, and

Fedora. It is observed that generally documents like theses, dissertations, seminar papers, journal articles, etc., are being found more in the repositories.

Keywords: Institutional repository; Information repository software; Digital libraries; Scholastic resource.

WHAT IS AN INSTITUTIONAL REPOSITORY?

The term 'Institutional Repository (IR)' consists of formally organized and managed collections of digital content generated by faculty, staff and students in an institution. The content of these repositories can be available for assimilation with on-campus library, course management systems, and can also be made available to colleagues and students in other institutions as well as to the public.

DEFINITION

"An Institutional Repository is an organization based set of services which the organization offers to the members of its community for the management and dissemination of digital materials created by the institution and its community members. It is most essentially as an organizational commitment to the stewardship of these digital materials, including long-term preservation where appropriate as well as organization and access or distribution".

- Clifford Lynch, 2003

"An Institutional Repository (IR) is defined to be a web-based database (repository) of scholarly material which is institutionally defined (as opposed to a subject-based repository); cumulative and perpetual (a collection of record); open and interoperable (e.g. using OAI-compliant software); and thus collects, stores and disseminates (is part of the process of scholarly communication). In addition, mostly it would include long-term preservation of digital materials as a key function of IRs".

- Mark Ware, Pathfinder Research on Web-based Re-

positories

ELEMENTS OF INSTITUTIONAL REPOSITORY:

As the digital Institutional Repository can be any collection of digital material hosted, owned or controlled and disseminate by any institution irrespective of purpose of origin. Institutional Repository can assume many forms and serve a variety of purposes as per the functions and objectives of parent institution. A digital archive of the intellectual product by the faculty, research staff and students/ research scholar of an institution and it should be accessible to end user without boundaries (with in and out of the institution).

The content of an Institutional Repository could be:

Pre-prints of articles or research reports submitted for Publication

The text of journal articles accepted for publication

Revised texts of published work with comments from academic readers

Conference papers

Teaching materials

Student projects

Doctoral theses and dissertations

Datasets resulting from research projects

Committee papers

Computer software

Works of art

Photographs and video recordings

An institutional repository may contain work of which copyright is owned by the author or institute, or for which permission has been obtained to include a copy of the work in the repository.

WHAT IS THE AIM OF IR?

The most indispensable aim of this IR is to enhance the speed of institutional adoption by providing practical assistance and advice based on available solutions, with an

emphasis on operational issues to do with the installation, implementation and deployment of institutional repositories.

OBJECTIVES

The four main objectives for having an academic institutional repository are:

1. To create global visibility for an institution's scholarship;
2. To collect content in a single location;
3. To provide open access to institutional research output by self-archiving;
4. To store and preserve other institutional digital assets, including unpublished or otherwise easily lost ("grey") literature (e.g., theses or technical reports).

METHODOLOGY:

The IR's owned by R & D institutes / Academic institutes in India have been selected from the secondary sources, metadata harvesting services, directories etc for this study. The data related to the R & D institutional repositories have been collected from their respective institutions' websites and other secondary sources. Case study method is also followed for this study. The data's are analyzed based on certain parameters, such as number of documents, software used, growth of collection etc.

CHARACTERISTICS

Henry & Anderson (2005) states that the characteristics of IR, Contains content, deposited by owner, creator or third party; repository architecture manages content as well as metadata; repository offers a minimum set of basic services. eg. put, get, search, access control etc.; repository must be sustainable, trusted, well supported and well – managed.

WHY SHOULD AN ORGANIZATION DEVELOP IR?

To provide access to unpublished, but nevertheless valuable, research of faculty, research staff, and students.

To promote the principles of open access by providing opportunities for faculty self archiving.

To preserve and disseminates a wide variety of content beyond traditional scholarly

articles, including datasets, learning objects, electronic theses and dissertations, audiovisual content, and presentations. It helps to universities fulfill obligations to make publicly funded or non-profit-funded

research available on an open access basis.

It encourages access and sharing among disciplines and institutions

It allows universities to capture digital e-learning courseware so they can expand on existing programs

BENEFITS OF IR

The principal benefit is that repositories make it easier for faculty members to get previously scattered or restricted-access materials in a single location.

Research scholars and faculty members are also expected to benefit from the increased visibility associated with repositories. Since repositories are typically defined as open access systems, the content receives more use from the academic community because it is free. This may translate into higher citation rates than comparable material published in subscription-only journals.

Moreover, repositories eliminate what many academics consider the artificial space limitations of printed journals, allowing for more and different kinds of information to be published. As these constraints are lifted, researchers can expect more of their own work and that of colleagues to become available for review. It should help in the creation of knowledge to advance the field of study.

TYPES OF RESEARCH MATERIAL IN IR

There are three types of research materials in an Institutional repository, namely, Published Research Material, Unpublished Research Material and Supporting Research material.

S. No	Type	Example
1	Published Research Material	Book chapters, Journal articles, Conference papers...
2	Unpublished Research Material	Preprints, working papers, Thesis / dissertations, technical reports, progress/status reports, committee reports presentations, teaching materials, audio/video clips..
3	Supporting Researchmaterial	Data sheets, models, blue prints..

AN INSTITUTIONAL REPOSITORY CAN PROVIDE

Greater access to grey literature

A complement to existing Scholarly Communication models

A complement to other digital collections (dynamic connections between ‘texts’)

Redundancy of scholarship (NELLCO & RePEc)

Collocation for a scholar’s work (Researcher Page)

HOW DOES IR WORK?

Research material is managed on an Institutional Repository Server, using

appropriate IR software.

Accessible on the organizational LAN (intranet) + Internet/
Private Scientists use a

web browser to submit (deposit) research material and also search the repository.

Through OAI inter-operability protocol, a central search service network.

‘Harvests’ metadata from individual IR’s, builds a cross-index and provides

single point cross-repository search service.

Security concerns could be handled at network, IR and publication level.

CHALLENGES OF AN IR

Despite the numerous benefits of an IR, there are implications and potential barriers to its success summarised below (Pickton & Barwick, 2006):

Cost: The initial financial cost for an open source software adopted by most institutions for creating IRs is not high but the recurrent costs, especially staff costs (e.g. time spent drafting policies, developing guidelines, publicising, training, supporting users and creating metadata, specialist IT consultancy) may be significant. This is further discussed below.

Difficulties in generating content: A successful IR depends on the willingness of authors to deposit their work voluntarily and there may be local barriers and hindrances to be overcome. There are acknowledged difficulties in generating content, especially at the beginning. Unless the value of an IR can be demonstrated quickly, the organization's long-term commitment to the project may begin to wane. The best way to prove the enduring value of the IR and to ensure its long-term survival is to quickly populate it (Gibbons, 2004).

Sustaining support and commitment: Far too often, it is difficult to sustain continuous support and commitment from the management and academic staff. Lynch (2003) has succinctly described this obstacle: "Stewardship is easy and inexpensive to claim; it is expensive and difficult to honour, and perhaps it will prove to be all too easy to later abdicate" There is a need for institutions to think seriously before launching institutional repository program as it may disintegrate rapidly if not properly managed.

Rights management issues: Sometimes researchers are apprehensive about infringing publishers' copyright and lack adequate awareness about their own intellectual property rights. They may be uncertain about making their work available online before it is published by a traditional publisher.

Working Culture issues: Contributing content to user-generated or 'self-service' sites is time-consuming; and time is something which academics often lack. They may be willing to contribute content but reluctant to do it themselves. This

calls for mediated deposits service for them.

Policy Issues: Experiences suggest that an IR will only function to its capacity when a mandate is in place to populate it but clearly researchers can react negatively to any suggestion of compulsion. Lynch (2003) has cautioned that an IR should not become a tool for enforcing administrative control over academic work.

Lack of incentives: In the absence of any incentive academics feel reluctant to provide even bibliographic details of their scholarly output especially when they know that incentives are available in other institutions.

The challenge therefore in implementing an IR is to promote the benefits it offers while allaying stakeholders' concerns.

WHAT SOFTWARE IS USED FOR INSTITUTIONAL REPOSITORIES?

A variety of systems are in use. IR software may be supported in various ways (e.g., locally supported, centrally supported by a consortium of institutions, or supported for a fee by a vendor). Four commonly used systems are:

Digital Commons, commercial software, <http://www.bepress.com/ir/>

DSpace, free open source software, <http://www.dspace.org/>

EPrints, free open source software, <http://www.eprints.org/>

Fedora, free open source software, <http://www.fedora-commons.org/>

OTHER IR SOFTWARES

ARNO (Academic Research in Netherlands Online), Tilburg University <http://www.uba.uva.nl/arno>

CDSware (CERN Document Server software, CERN, Geneva, Switzerland, <http://cdsware.cern.ch/>

I-Tor (Tools & Technologies for open repositories), Netherlands <http://www.i-tor.org/en/toon>

MyCore- <http://www.mycore.de/engl/index.html>

FEATURES AND FUNCTIONALITY

Registration of institutional users (authors) includes for document submission and other privileged use, User authentication and Profile set up.

Document submission includes Authentication, Assign Metadata, Upload Document and Grant license

Approval / moderation includes Submission approval (metadata, format, affiliation, etc.) and Content approval (peer review)

Archiving includes Date stamping, Unique/persistent identifier assignment, Preservation support and Indexing and storage

Dissemination includes Search, browse, OAI registration and compliance (metadata exposure) and Rights management

Administration includes Administer communities, collections, users, groups, Document formats, metadata, Licenses, submission policies and Preservation

IR USERS

The following are the users of institutional repositories,

Senior administration

Graduate students

Retiring professors

University research documents

Institutes and Centres

Our own organization

ADVANTAGES OF IR

It is a new and innovative channel of scholarly communication.

It provides wider access and visibility to the research output.

It preserves of institution's heritage.

It reduces the publication delay.

It is a faster and effective communication channel.

It increases the citation to the publications.

It strengthens research especially in the Indian context.

It is a boon for Gray Literature visibility.

CONCLUSION

The institutional repositories offer access to research publications and other digital documents of respective institutions. The popularity of this concept is growing rapidly in the higher educational and research institutions to disseminate newly emerged knowledge and expertise. The institutional repository is a scholastic resource for its success and its long-term sustainability.

The institutional repositories needs to be reviewed regularly and users' feedback obtained from the user communities. Their popularity can be increased through postings in list servers, web search engines, metadata harvesting services and publicity campaigns. The repositories should be linked from the institutions' respective websites. If the institutional repositories are available, in internet that can be accessed throughout the world. If an institutional repository offers quality research publications, well-defined metadata elements and user friendly search interface, it would be popular amongst researchers in the world over.

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Library Blogs: Overview

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ABSTRACT:

What is blog and blogging? How to be useful in the field of blog library and information science. Is there a need in the library and information science sector of the blog? And yes, how. The blog follows someone who writes and thousands of people read it. Blogs are published continuously and periodically. Thus the constant work is called blogging. Let's get some information about the blog sine field of some library and information science sector that has been working in the service for years.

KEYWORDS: Library, Blogs, Weblog.**INTRODUCTION**

A Weblogs or blog is a medium that takes on ideas, views, and suggestions from everyone. This is from a web application in which it is posted after a certain or indefinite time gap. It is not necessary to post at a certain time. It is also early or late. Every blog tells the story. But it is also about a person, organization, event, environment, health care, disasters or a subject, language, literature, etc. The person who writes and creates a blog is called a blogger and constantly maintains it, constantly posting in it is called blogging.

1. It is “a Web application that contains periodic, reverse chronologically ordered posts on a common Web page” (Wikipedia, 2008).

2. To Peter Scott (2001), a blog is “a page containing brief, chronologically arranged item of information. A blog can take the form of a diary, journal, what’s new page or links to other websites”.

3. Weblog is a dynamic, flexible tool that is easy to use whether you are creating with it or simply viewing the results (Richardson, 2004).

The blog phenomenon was in the 1990s. Blog she became a source of main diaries, later opinions and information at the end. No matter how small or large the information may be, blogs have become the ideal medium to publish information. Blogs combine resources. Which is shared by email covers small issues and areas of interest such as your private position, your point of view, advocacy, etc. Those who have a viewpoint of view, news, criticism, or any other topic published in the blog have to be given an updating from time to time. The use of blog users and blogs has also increased over time. According to the original definition of the blog, the blog is a web page called “Weblog”. (Now known

as a blog.) This is constantly published. Specific topics or web links the first new posted page appears first in the form of small, often unarranged small entries of eighth comments. There is a science (LISNEWS.com) in the field of library and information that accepts postings from its readers.

TYPES OF BLOG

There are many types of blogs. The way writing and delivering content differs.

1. By media type: The videos that contain them are called vlogs. The one shaving link is called link log. The site that includes the sketch is called the sketch blog. The site that includes the photos is called a photo blog. A blog with short posts and mixed media types is called tumble logs.

2. By device: The block is also defined and named after the type of device used by the composing device, such as a blog created by a mobile phone or PDA device called a moblog.

3. By topic: Some blogs are based on the subject. Fashion blogs, project blogs, legal blogs, drama blogs, school blogs also have personal ownership rights. They are private. Most of the time, they are business or business. Blogs are also written for marketing or for enhancing communication and culture. Corporate blogs are written for brand or PR objectives.

USE OF BLOGS IN LIBRARIES

The blog is not a new process for libraries as it is already an extension of what the librarians have been doing. Identify, organize and share library information with everyone. The blog provides us with opportunities to give more responses. Students/faculty can publish a news post through a blog if it is published. Also, the book is reviewed, commented, discussed, invited, event notifications, listing new edits, etc. are easily done through the blog

1. People still use blogs to encourage them to provide new library announcements.

2. To provide service to all things at the same time, to draw attention to new resources.
3. Criticism remarks on domestic and international events.
4. To give news on library services.
5. Helps connect users' feedback, comments, and requests to the library.
6. Those who never visit the library in person. Blogs can be used to inform them of current services for publishing useful news or resources they like through blog no.
7. To list new acquisitions and to post book reviews of library services news, events, announcements as well as books with students, staff, faculty.
8. RSS Feed is also an app. In which user responses, choices are known. What they want to tell us is the place to handle it. Has started using blogs to share ideas and seek feedback with key officials and colleagues comment also notifies, highlights his opinions, and Gives readers a platform to speak. The tendency to give and take creates a community spirit. As the blog gives advanced news, it is the best way to stay in the present appears in blogging, print, online magazines, journals.

The three main genres of library blog posts

The best blogs are a mix of these three types of blog posts.

Promotional posts: Most library blog posts are promotional. They focus on telling readers about an event, service, or collection item available at the library.

Promotional posts tend to be shorter. They also need to be frequently updated as services and collection items change.

Example: Jacksonville Public Library uses their blog to help their community find information on their website without having to create special landing pages for events and services.

Opinion posts: These posts demonstrate what the library stands for. They center on questions people have about li-

braries but are afraid to ask. Opinion posts also celebrate the strengths of libraries and the opportunities for improvement. Opinion posts are compelling and allow your library to cement your voice and your position in a way that your readers and cardholders will remember. It's great when a library takes a stand. People will respect you for it.

Example: The Stark Library CEO and Executive Director took a clear stand against racism in this recent blog post.

Authoritative posts: These posts demonstrate your library's expertise in a subject. For instance, a post that highlights your library's award-winning family history department is an authoritative post.

Example: Check out the My Librarian(s) Favorite Resources series on the Chapman University: Leatherby Libraries blog.

The Ugly First Draft

If you've been asked to write a post on your library's blog, your journey begins with what my favorite marketer Ann Handley calls The Ugly First Draft (UFD).

Your first job is to get all your ideas down in whatever format they escape from your brain. Write your draft without worrying about spelling, grammar, punctuation, or phrasing.

Open a Word document and try to keep typing until you can't think of anything else to say on a subject. If you are a skilled typist, look away from the screen so you're not tempted to focus on spelling or grammatical errors.

Revise to create the perfect library blog post

Write short paragraphs, not short posts. It's a myth that short blog posts will attract more readers. If your blog post is long but compelling, you'll have no problem holding the attention of your readers. A longer post that is well written and contains keywords will do better in Google search than a shorter post.

However, you should break up your blog post into shorter paragraphs. Short paragraphs are easier to read and understand. They open white space on your blog, which

makes your post more inviting.

Writing experts recommend paragraphs of no more than 150 words. I started writing shorter paragraphs about two years ago and saw a big boost in my metrics.

Be deliberate with your keywords. In the blog text, you need to include keywords for search.

You'll notice I use the phrase "library marketing" and "library promotion" frequently in this blog. That's because people searching for help with library marketing use those two phrases most often. Try Keywordtool.io. It does an amazing job of helping you to narrow your target phrase.

Put your keyword phrase in title, header, and body of blog post at least two times but more often if it makes sense.

Include images. Images can help you craft your message and tell your story. They also help to break up the text of your blog posts.

Use images to explain concepts or enforce the emotion you are trying to create.

Link to other content from your library. Your blog post can funnel your readers into engaging with your library. If you are talking about a specific service or a part of your library's collection, include links embedded in your text to help readers find more information.

Make sure your links open in a new tab. There's nothing more annoying than clicking on an embedded blog post link in the middle of a post and then having to tab backwards to read the rest of a blog post.

Create engagement opportunities for your reader.

Use your blog posts to start a conversation with your readers. Ask a question and invite readers to post their answers in the comment.

Your library can also embed a social media post in your blog so readers can post a key point to their social media. This gives your post the potential to reach new readers.

Spend a lot of time on your headline. A good headline should give your readers a hint at the copy that lies ahead without giving away the whole story. It should trigger an emotional response that includes an irresistible urge to read more.

You can get lots of tips for headline writing in this blog post.

Incorporate several rounds of edits for spelling, grammatical, and punctuation errors. Run your blog posts through an online editor to catch errors. Ask your co-workers to edit your blog as well.

Print your blog post out and read through it, word for word, out loud. Doing this will force your brain to pay attention to the extra attention to what you've written. Your brain will often fill in or gloss over errors when you silently read. But if you read your post out loud, those errors become obvious and can be fixed before publication.

Four more tips for library blog success

Use your blog as a networking tool. Ask community leaders to write guest posts. Reach out to school administrators, policy makers, influencers, and other nonprofit organizations. Or use your blog to interview someone.

Once you publish, send a link to the contributors or interviewees. Ask them to share your post with their audience. This will amplify your message and expose your blog to a new audience of readers.

Example: The National Library of Australia interviewed fashion designer Nicky Zimmermann in this blog post that led to lots of media exposure for the library.

Post consistently. The best way to maintain web traffic to your blog is to make sure people are always waiting for an article to go live.

Decide how many posts you can create a week and which days you'll post on. Then stick to your schedule.

Promote your blog posts on other platforms. Most of your

readers will not just stumble upon your post by accident. You need to make sure they know that your library has published a post.

Promote your posts on your social media platforms, in your emails, and in patron interactions.

Your blog can also be used instead of a press release to pitch a story to a member of the media.

Evaluate your post metrics. Check in once a month and enter your metrics on a spreadsheet so you can track results over time.

Compare views, watch time, and bounce rate for your posts. You can also compare post length.

Your metrics will help you to continue to improve and update your blog based on your audience's needs and wants.

Methodology

Data collection

The first step in this study was to create a list of English-language blogs maintained by librarians, information professionals and libraries. Only blogs that provided information for librarians and information professionals and/or disseminated non-personal information to the general public were included. Often the blog postings contained personal information as well, but blogs where all the postings were personal were excluded. Personal blogs are widespread on the Web and among librarians, but their uses were not examined in this study.

Data were collected on two occasions, in December 2003 and in February 2005 which enabled the analysis of changes in the blogging patterns of librarians over time. Except for two or three entries that were only discovered during the content analysis of the blogs, the list for the first data collection point was compiled on 5 December, 2003. The list for the second data collection point was compiled on 15 February, 2005; the blogs were checked for existence and

activity between February 15 and 19, 2005. Only active blogs were analysed, where active is defined following Henning (2003) as blogs that were updated at least once during the two months period prior to the date of inspection.

CONCLUSIONS

The blog has brought many benefits to people. This includes the library and information science sectors. Budding readers get information, reviews, events, articles, links, interviews on their field sitting at home through online medium. Also, the necessary techniques, technology, technologies are known in the future. To list new edits, to inform the library's current services, users' feedback is known about criticism comments. Thus, blogs are useful in the library and information science sector in many ways.

This paper presents an extensive analysis of a large set of English language library and information science blogs. The findings indicate that librarian blogs can and do serve as new information channels both for the library and information science community and for the general public. Some of these blogs provide valuable information, some in a telegraphic style (mostly by providing links), others have longer pieces that include opinions on the issue mentioned. Some spice their postings with patron stories or discuss issues like the librarian action figure or add personal postings that provide insights to the world of the creator of the blog, thereby enhancing the blog reader's experience. Some of the blogs have active readership as can be seen from the comments on the postings. Library blogs, on the other hand, fulfill a different purpose, even though they also often publish general and subject specific information, their main use is to provide local information and to advocate the use of the library and its resources.

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OPAC: Mirror of Library

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=====*****=====

Abstract

This paper is about a library application or software. The paper deals with the OPAC which is a systematic application and not exploitation of information technology. The current world is known as Postmodern World i.e. global. Everything is constantly transferring. Library is also changing. Now a days, library has transformed into digitalization. OPAC is a library catalog on the Web or Intranet. Users can search the required information by connecting to Uniform Resource Locator (URL) of OPAC anytime during the day and from anywhere in the world. The purpose of study is geographically how many institutions are providing OPAC services, what type of LMS software's using.

Key Words: OPAC, Web OPAC, Web Scale Discovery Services.

1. Introduction

OPAC (Online Public Access Catalogue) changed the traditional card catalogue system. In the new system, data

can be spread within computer and then the required entry can be retrieved immediately through OPAC system in any format. Online Public Access Catalogue is an increasingly familiar piece of equipment in libraries. Today, a large number of libraries have automated their operations and services using this technology to fulfill their users' needs. Public catalogue, which is an important service of the library, is not exceptional to computer technology. Computerized catalogue is termed as Online Public Access Catalogue (OPAC). It acts as an information retrieval system for the user. OPAC has revolutionized access to bibliographic information through search capabilities such as keyword searching, Boolean searching, truncation, proximity searching, and item identity number searching. These were not possible in the traditional catalogue. A large number of libraries are providing OPAC service to their users to find out their documents. In such a situation, the libraries should examine periodically how much comfort the users feel with this service so that some initiatives could be taken timely to improve this facility.

2. What is OPAC

OPAC stands for Online Public Access Catalogue. An OPAC contains all the bibliographic information of an information centre or we can say it is a gateway to information centre's collection. OPAC is the modern and flexible form of the catalogue, usually instantaneous and sophisticated access to any recorded information within a computer. Online Dictionary for Library and Information Science (ODLIS) defines OPAC as, "An acronym for online public access catalog, a database composed of bibliographic records describing the books and other materials owned by a library or library system, accessible via public terminals or workstations usually concentrated near the reference desk to make it easy for users to request the assistance of a trained reference librarian. Most online catalogs are searchable by author,

title, subject, accession number, departmentwise list, latest 100 arrivals, class number, topic / remark search and keywords and allow users to print, download, or export records to an e-mail account.

ALA Glossary defines OPAC as, “A Computer based and supported library catalog (bibliographic database) designed to be accessed via terminals so that library users may directly and effectively search for and retrieve bibliographic records within the assistance of a human intermediary such as a specially trained member of the library staff.

3. OPAC Criterion

3.1. Title Search

Br.No.	Register	Acc.No.	Call.No.	Title	Author1	Author2	Author3	Publisher	MRP	Status	Cup.	Shelf	PRN	Member
1	General	32075	004.0/MAN	Introduction to Information Retrieval	Manning, Christopher D.	Raghavan, Prabhakar	Schütze, Hinrich	Cambridge University Press, New Delhi.	750.00	On Shelf	15	12		Select
2	General	32075	004.0/MAN	Introduction to Information Retrieval	Manning, Christopher D.	Raghavan, Prabhakar	Schütze, Hinrich	Cambridge University Press, New Delhi.	750.00	On Shelf	15	12		Select
3	General	32077	004.0/MAN	Introduction to Information Retrieval	Manning, Christopher D.	Raghavan, Prabhakar	Schütze, Hinrich	Cambridge University Press, New Delhi.	750.00	On Shelf	15	12		Select

Img – 1

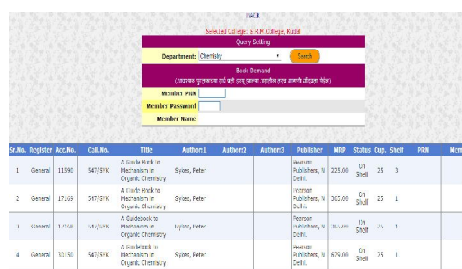
The above image indicates that one can search a book using this facility. You can search any book by typing the title of the book. You can type just some letters and the application will show you the list of suggested books. This service is useful if you forget the exact name or spelling of the book.

3.2. Accession Number

Br.No.	Register	Acc.No.	Call.No.	Title	Author1	Author2	Author3	Publisher	MRP	Status	Cup.	Shelf	PRN	Member
1	General	32075	004.0/MAN	Introduction to Information Retrieval	Manning, Christopher D.	Raghavan, Prabhakar	Schütze, Hinrich	Cambridge University Press, New Delhi.	750.00	On Shelf	15	12		Select

Img – 2

If you know the accession number of the book, you can directly search the book by just typing the accession number. When new books arrive in the library, a Librarian gives a specific number to that book. Those are mentioned in Accession number Register as well as in the software.

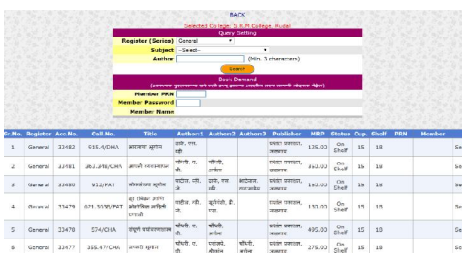
3.3. Department wise List


The screenshot shows a search interface with a 'Department: Chemistry' dropdown and a 'Search' button. Below the search form is a table with the following data:

S.No.	Register	Acc.No.	Call No.	Title	Author1	Author2	Author3	Publisher	Year	Status	Qty	Stock	PNR	MRP
1	General	11100	547.57K	A Guide Book to Microscopy of Organic Chemistry	Sykes, Peter			Academic Press, N. Delhi	2005	OK	25	3		
2	General	17103	547.57K	A Guide Book to Microscopy of Organic Chemistry	Sykes, Peter			Academic Press, N. Delhi	2005	OK	25	1		
3	General	17104	547.57K	A Guide Book to Microscopy of Organic Chemistry	Sykes, Peter			Academic Press, N. Delhi	2005	OK	25	1		
4	General	13110	547.57K	A Guide Book to Microscopy of Organic Chemistry	Sykes, Peter			Academic Press, N. Delhi	2005	OK	25	1		

Img – 3

Here, you can find books by department-wise. In this software one can see how many books are in a particular department. e.g. Chemistry, Physics, Zoology, Marathi, English, Economics, Geography departments etc. It helps the students to find out the exact book from his subject.

3.4. Latest 100 Arrivals


The screenshot shows a search interface with a 'Department: General' dropdown and a 'Search' button. Below the search form is a table with the following data:

S.No.	Register	Acc.No.	Call No.	Title	Author1	Author2	Author3	Publisher	Year	Status	Qty	Stock	PNR	MRP
1	General	23103	615.615K	General	General			General	2005	OK	10	10		General
2	General	23104	615.615K	General	General			General	2005	OK	10	10		General
3	General	23105	615.615K	General	General			General	2005	OK	10	10		General
4	General	23106	615.615K	General	General			General	2005	OK	10	10		General
5	General	23107	615.615K	General	General			General	2005	OK	10	10		General

Img – 4

Every year, college buys books for library. In this software, you can find latest 100 books arrivals at a glance. This option is time consuming and very easy to use. You will get information of the latest arrival books at one place.

3.5. Remark / Topic Search

Selected College: S.B.M College, Kullu
 Query Setting
 Author Name: Enter Keyword
 Publishing Style: Book Demand
 (Inserts characters and sets the book number and name after BPS)
 Member PIN:
 Member Password:
 Member Name:

Register	Acc.No.	Coll.No.	Title	Author-1	Author-2	Author-3	Publisher	MRP	Books/7	Status	Cap.	Staff	PIN	Member
1001001	1001001	1001001	Introduction to Ecology	Robert Gray M.			Cambridge University Press, New Delhi.	750.00	On Shelf	15	12			Select

Img – 5

Research students find this facility very useful. Here, you have to just type topic and the software shows list of books in which that topic is included. Sometimes we need only particular topic but we do not know that in which book that topic is included.

3.6. Author Search

BACK
 Selected College: S.B.M College, Kullu
 Query Setting
 Author Name: Enter Keyword
 Publishing Style: Book Demand
 (Inserts characters and sets the book number and name after BPS)
 Member PIN:
 Member Password:
 Member Name:

Sr.No.	Register	Acc.No.	Coll.No.	Title	Author-1	Author-2	Author-3	Publisher	MRP	Status	Cap.	Staff	PIN	Member
1	General	32075	004-9/14AN	Introduction to Information Retrieval	Hamming, Christopher D.	Raghuvaran, Prabhakar	Schutze, Horst	Cambridge University Press, New Delhi.	750.00	On Shelf	15	12		Select
2	General	32076	004-9/14AN	Introduction to Information Retrieval	Hamming, Christopher D.	Raghuvaran, Prabhakar	Schutze, Horst	Cambridge University Press, New Delhi.	750.00	On Shelf	15	12		Select
3	General	32077	004-9/14AN	Introduction to Information Retrieval	Hamming, Christopher D.	Raghuvaran, Prabhakar	Schutze, Horst	Cambridge University Press, New Delhi.	750.00	On Shelf	15	12		Select

Img – 6

One can find book by author's name using OPAC. If you don't know full name of author you can write the letters in search box. And this software shows you so many results indicating the letters which you have typed. Hence, it helps you to find the correct book.

3.7. Class Number

BACK
 Selected College: S.B.M College, Kullu
 Query Setting
 Class Number: 004.9
 Publishing Style: Book Demand
 (Inserts characters and sets the book number and name after BPS)
 Member PIN:
 Member Password:
 Member Name:

Sr.No.	Register	Acc.No.	Coll.No.	Title	Author-1	Author-2	Author-3	Publisher	MRP	Status	Cap.	Staff	PIN	Member
1	General	32075	004-9/14AN	Introduction to Information Retrieval	Hamming, Christopher D.	Raghuvaran, Prabhakar	Schutze, Horst	Cambridge University Press, New Delhi.	750.00	On Shelf	15	12		Select
2	General	32076	004-9/14AN	Introduction to Information Retrieval	Hamming, Christopher D.	Raghuvaran, Prabhakar	Schutze, Horst	Cambridge University Press, New Delhi.	750.00	On Shelf	15	12		Select
3	General	32077	004-9/14AN	Introduction to Information Retrieval	Hamming, Christopher D.	Raghuvaran, Prabhakar	Schutze, Horst	Cambridge University Press, New Delhi.	750.00	On Shelf	15	12		Select

Img – 7

The books are classified according to subjects and departments. Sometimes, we forget author's names, books' names, and accession number but you remember classification number. You can find the book.

3.8. Subjectwise List


S.No.	Accession No.	Title	Author	Subject	Status
1	10001	English Grammar	English Grammar	English	Available
2	10002	English Literature	English Literature	English	Available
3	10003	English Composition	English Composition	English	Available
4	10004	English Reading	English Reading	English	Available
5	10005	English Writing	English Writing	English	Available
6	10006	English Speaking	English Speaking	English	Available

Img – 8

This software shows subject-wise books in each Department e.g. if department is English, the classification of literature is like poetry, drama, novel etc.

3.9. All College At A Time Search


Sr. No.	College	Title	Copies
1	Arts & Commerce College, Krasogan	1	10
2	Krasogan College, Krasogan	1	10
3	Krasogan College, Krasogan	1	2
4	Krasogan College, Krasogan	1	1
5	Krasogan College, Krasogan	2	2
6	Krasogan College, Krasogan	1	1
		Total	26

Img – 9

This slide shows that how many colleges have bought this software. If any book you want which is not available in your college library. You can search here that book. The software shows you the list of colleges in which that book is available.

3.10. User Account

Sr.No	Acc.No	Register	Title	Author	Callno	MRP	Iss.Date	Exp.Date	Ret.Date
1	2295	Donation	विद्यार्थी संग्रह	कवर्ग, सीध	930/PAN	30	11/03/2019	10/03/2020	
2	32/49	General	महा बुद्धचरित और महाविजय चरित	काठ - शङ्कर, सीध	020/HEM	100	03/08/2019	02/08/2020	
3	22623	General	पावली अष्ट	कान, मुनी	920.1/SAH	100	22/08/2019	20/08/2020	
						330			

Img – 10

This option shows the detailed information about user's accounts. You can find out that how many books you have. It also shows the dates of returning and getting books.

3.11. User Feedback

Img – 11

This software helps to get feedback about the facilities of library. This includes user PRN, user password and feedback.

4. Advantages of OPACs

Following are the advantages of the OPACs

1. It is worldwide and all the time accessible.
2. The status of any book may be known as book issued or not, lost/transferred, etc. The status of an acquisition order may be available at both staff and public terminals located throughout the library.

3. It is possible for users to send reprint requests immediately by e-mail or SMS.

4. Compilation of various lists of reprints becomes very easy.

There is no limitation of space and time for searches of any documents. Any person can search a document of not only his/her library but also any networked library.

5. Conclusion

The Online Public Access Catalogue is a very essential information retrieval tool of libraries and information centers. Today it is considered as a gateway to library resources which every library users must be aware of and use it to search their needed document and to fulfill their information requirements. The search process in OPAC has more or less remained the same, as in the card catalogue but with increased access points, varieties of search features and increased complexity of the process. The use of OPAC by students and faculty members has increased their information, retrieval rate especially in locating books and other reading materials in the library. OPAC is an instrument of change in today's libraries. Throughout the paper, I firmly state that OPAC software is very useful for college libraries. It is not only saving the time of users but also a user can access it everywhere.

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Importance of MOOCS in Covid-19 Pandemic Situation

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=====*****=====

Abstract

Due to the corona virus pandemic, MOOCs are being implemented as the new standard of education at all levels. From elementary education through undergraduate degree programs as part of remote learning plans. In an early era, technological jobs have grown in demand, online courses have grown in popularity as a means for students or users to gain new technical skills.

As we all aware that Massive Open Online Courses (MOOCs) offer accessible and affordable remote learning opportunities to all users over the world. Most of the higher education institutions deliver these online courses on a variety of topics and at a variety of educational levels. This paper facous on some of the online cources in detail.

Keywords MOOCS, libraries, information technology, corona virus pandemic

Introduction

Massive Open Online Courses (MOOCs) are free online courses available for anyone to enroll. MOOCs provide an affordable and flexible way to learn new skills, advance your career and deliver quality educational experiences. Number of users around the world use MOOCs to learn for a different reasons, which includes mainly career development, changing careers, college preparations, supplemental learning, life-long learning, corporate e-learning & training, etc and many more. A MOOC may be patterned on a college or university course or be less structured. Although they do not always offer academic credits, these courses may offer a certification; enhance employment opportunities or further studies. Typically, MOOCs are used for higher education and career advancement. But due to the coronavirus pandemic, many institutions have implemented MOOCs as the new standard.

Definition

- A course of study made available over the internet without charge to a very large number of people.
- A MOOC refers to an online course that allows users from across the world to learn the same material, without prerequisites, in a flexible learning environment.
- MOOCs are open, large-scale web-based courses designed and delivered by accredited higher education institutions and organizations in which anyone with a smart device and internet connection can participate, regardless of age, gender, geographic location, or education background.
- MOOCs are online courses without entrance requirements other than Internet access. Consequently, MOOCs are free for the learners and do not set a maximum number of participants.

Credentials and MOOC-based degrees

- MOOC certification levels typically fall into the following six general categories:

- **Free**

- **Certificates**
- **Micro credential**
- **University credit**
- **Online degree**
- **Corporate training**

Advantages of MOOCs

- **No physical location dependence**
- **Improved access to higher education**
- **Affordability of higher education**
- **Flexible learning schedule**

Disadvantages of MOOCs

- Flexibility can make the course more difficult to manage, as some students require the structure of in-person learning.
- Instructors are less accessible.
- Digital literacy is required for effective use.
- Students are less likely to form relationships with instructors and other students.
- Students with visual or auditory disabilities may not be accommodated.

Popular MOOCs

There are thousands of MOOCs available online, but many are offered on popular platforms, and by institutions that have invested in making their courses accessible online. The following are several popular professional education of MOOCs .

Canvas Network

Canvas Network mainly provides predominantly free and self-paced online classes. Learners benefit from open licensing options that allow them to freely share and reuse content as well as integrate third-party tools for their own purposes. Specifically, learners can enroll in more general learning paths, taking a series of classes on broad subjects like deep learning and Scala programming.

Coursera

It is one of the largest massive open access course providers in the world. Coursera was founded in 2012 by Stanford professors and the platform partners with 190 companies and universities to provide fully remote and self-paced learning opportunities leading to digital certificates at the undergraduate, graduate, and postgraduate levels.

EdX

EdX is another leading MOOC platform. Created as a joint venture between Harvard and MIT, Students can access more than 2,500 courses from 140 higher education institutions covering popular subjects like science and the humanities, computer science classes in Python, front-end and full-stack development, as well as cybersecurity.

Future Learn

Future is one of the most used massive open online course provider founded in the UK in 2012 by 12 university partners, including King's College London and the University of Leeds. Students can complete one of 418 short courses to learn new skills in areas like digital product management, ecology and wildlife science, and the future of globalization. They may also obtain micro credentials from leading universities and major companies.

Iiversity

Based in Berlin, diversity partners with a variety of companies, nongovernmental organizations and universities across Europe to deliver more than 60 courses in English, German, and French. The platform maintains industry standards with the help of web designers and UX developers, ensuring the highest levels of usability and student engagement. The organization also offers corporate training services through its "iversity for Business" initiative.

Kadenze

Kadenze was launched in 2015 as a for-profit company with the support of 18 institutional partners, including

Princeton University and the Rhode Island School of Design. This MOOC provider focuses on music, visual arts, creative technology, and other fields of study that lagged behind due to the prominence of STEM education. Students enjoy self-paced, mobile-friendly content that lets them showcase their skills with professional portfolio tools.

Khan Academy

This platform offers entirely free online courses that integrate instructional videos, practice exercises, and a personalized learning dashboard. Unlike many other MOOCs providers, Khan Academy largely supports K-12 students, with content for pre-algebra, English language education, AP chemistry, and U.S government and civics. Learners may also access preparation materials for standardized tests, including the SAT, ACT, GRE, NCLEX-RN, and even the Praxis exams. Furthermore, Khan Academy offers resources for teachers and parents, who can assign standards-aligned course materials and track student progress. Through networking tools, users may connect with students and teachers across the globe.

Udacity

Udacity is a for-profit MOOCs platform that focuses on career development through technical and vocational online courses. Topics span six areas of study, which include data science, cloud computing, autonomous systems, and artificial intelligence. Students can also take programming and development classes in C++, Block chain, and Android developer.

Udemy

This is one of the largest online learning provider, offers over 150,000 courses in 65 languages. While students can take a variety of free courses, many MOOCs require a fee. By paying for premium content, users also gain access to features like direct messaging, Q&A, and certificates of completion. Topics cover 11 broad categories, including of-

office productivity, health and fitness, and photography. Students can also complete finance and accounting classes, learning the key elements of Bit coin and block chain or developing global market analysis skills. Additionally, Udemy provides personal development content that enables users to manage stress, improve their self-esteem, and cultivate meaningful relationships.

nt trends in higher education in recent years. It represents open access, global, free, video-based instructional content, problem sets and forums released through an online platform to high volume of participants aiming to take a course or to be educated. With time and place flexibility, MOOCs gathers scholars and learners around the world. MOOCs is the latest trend in the field of distance education which seems to go on for some time which indicate a significant need of research studies on it.

Conclusion

Recently in this pandemic situation the moocs are playing a vital role in education field. It represents open access, global, free video based instructional content. Moocs gather scholars and all learners around the world. It is recognizing as a very effective tool.

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QR code is an innovative technology for libraries to give Better Services

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=====*****=====

Abstract:

During the pandemic academic libraries played an important role in providing resources and services to students and teachers using digital technologies in innovative ways. This paper highlights how the digital best practices run by the BSM library came into force in providing various services to its users at home with the help of D-space software creating QR Code for Institutional Repository. QR codes have been created to link directly to the URL of the subscribed e-resources and services of BSM library; and embedded to its website for easy and immediate access of users in smart phones. Web-OPAC more convenient 'Google Like' interface for searching library books. Computerized facility of issuing and returning saves the time of users.

All library users can access easily on mobile by scanning QR code and visit IR for searching information. Old Ques-

tion papers, audio, video, ppt, pdf, e-content access very easily so all student users increasing day by day. Provide free open access e-content users just need network connectivity and computers to access them.

With the arrival of affordable smart mobile phones, libraries all over the world have been trying to utilize them for the betterment of their services. QR code is one of the technologies which can be used with a smart mobile phone. Although in most of the cases libraries are the end user of these technologies, they make the life of all the stakeholders of the library smart and comfortable. It discusses the features and functionality of this technology and tells about how it can help libraries to make their services more attractive and efficient. It also discusses the issues involved in the application of QR code and emphasizes that “Quality” along with “Quick” should be the prime aspect of services.

Key Words: QR Code, Use, Benefits, Advantages of using QR code, Objectives, Institutional Repository, OPAC and Web-OPAC

Introduction:

Mobile technology has revolutionized the communication process, and the smart phones are making a paradigm shift in our day to day activities. Although there are many uses of Smartphone for various operations, one of the unique use of these phones are providing quick response to the users by scanning of QR (Quick Response) codes. They are named as Quick Response Code because they decode the hyperlinked content at the speedy rate. QR codes are similar to bar codes but, they have two- dimensional pictographic images whose scanning leads to the page which are hyperlinked to them. Like the barcode, they need a particular device called QR codes scanner to get them scanned (read) and reach to the respective hyperlinked object. Smart mobile phones have the apps called QR code scanner or reader to get these images scanned.

QR codes are being used on many household products, on reading materials like magazines, books, CDs etc. and even in the advertisement section. This paper highlights how QR code of BSM library came into force in providing various services to its users at home with the help of D-space software for Institutional Repository, and QR of Web OPAC for searching books status available in library.

What is QR Code? A QR (Quick Response) code is a type of two-dimensional bar code appears as a small white square with black geometric shapes in which data are encoded based on the position and combination of the black spots read by smart phones\androids with camera. They are sometimes referred to as mobile codes. Even otherwise we can term it as a matrix barcode readable by smart phones with the help of mobile cameras. QR codes can hold much more information than a regular barcode. The information encoded in a QR code can be a URL, a phone number, an SMS message, a V-card, or any text. They are referred to as QR because they allow the contents to be decoded at high speed.

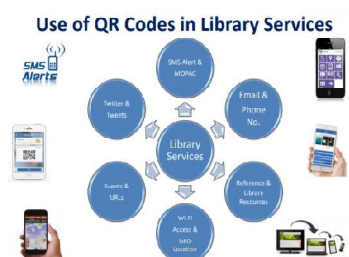


Applications of QR Codes in Libraries:

They are free and easy to use as well as embed many types of media. Once you write a code you can also change the appearance to include a picture or logo within the QR code. The usages of library sites are increased as the user don't need to type long URLs. The use of quick response (QR) codes in libraries is just beginning to evolve, with a varied and vast feature. They have been effectively used in library to do deliver information appropriate to the context and lo-

cation of the user. Library exhibits that include a QR code link to songs, videos, Web sites, surveys, contests, etc. Codes in the library stacks/end caps or magazine/journal areas that point to online electronic holdings of print materials or related subject guides. Some of the important activities, QR codes are applied in libraries are as follows:

- Link to website
- Link to library institutional repository, YouTube video
- Easy access to previous year question papers, e- resources, e-book, e-content,e-magzine etc.
- Marketing /promotional material



Use of QR Codes in Library Services:

- **SMS Alert and MOPAC**
- **Institutional Repository**
- **E-mail and phone numbers**
- **Reference and Library Resources**
- **Wi-Fi access and Geo-location**
- **Events and URLs**

Benefits of QR Code Applications to Library Services:

- **User Friendly**
 - **Personalized service**
 - **Ability to access Information**
 - **Time Savings**
 - **User Participation**
 - **Location awareness**
 - **Limitless access**
-

Advantages of QR Codes:

- **Sharing**
- **Users love mobile Phones**
- **Interactive and Simple to use**
- **High Data Capacity**
- **Variety of Data**
- **Small Printout**

Objectives:

- 1. To promote library services through QR codes of Institutional Repository and Web-OPAC through using QR code.**
2. Scanning QR Code to access e-content (Video, Audio, PPT, PDF) for teaching and learning.
3. Scanning QR code of Web-OPAC for claim the book, reserve the book and renew the books through library network.

How to generate QR code?

It is a two way process that is encoding and decoding, libraries has to encode useful documents and resources into QR code. A QR code is read by an imaging device, such as a camera, in a mobile phone with QR code scanner applications that can read and decode data from a QR code. There are following seven steps for generating the QR codes:

1. Select a QR code generator.
2. Choose the type of content you're promoting.
3. Enter your data in the form that appears.
4. Consider downloading a dynamic QR code.
5. Customize it.
6. Test the QR code to make sure it scans.
7. Track and analyze performance.

There are some of free QR code generator websites and reader applications. QR codes generator websites QR codes reader Application

<https://app.qr-code-generator.com/>

[http://](http://www.qrcode.kawya.com/)

www.qrcode.kawya.com/

Use of QR Codes in the Academic Libraries: There are so

many way to disseminate the information to the users with the help of technology. Academic libraries have to promote their services through this new technology. Libraries have to create such QR codes of documents as well as e-resources, and then display these codes for the users. Here, some of the examples of QR codes uses in academic libraries include:

Question papers:

Libraries have to create QR codes which contain a link of question papers stored on a local file or institutional repository. QR code is pasted on the rack of question papers or notice board or elsewhere. After scanning a QR code, smart phone will connect automatically and users can get all Question papers in their mobile phone.

E-magazine: The Libraries that have subscribed print and online periodicals and some of the reputed magazines can convert into a QR code, which could be pasted QR codes on magazine's cover page, and the user will able to connect it through smart phone automatically and access the magazines in their smart phone.

E-Books

Library has to purchase online e-books or collected free e-books. Users can access these e-books though QR code .Library has to create a QR code of e books and pasted this code on book shelf or notice board. A library user can connect automatically through their smart phone and easily access of e-book.

Website Link:

Library has to link various useful websites which is useful to the users. Library has to create a QR code of websites link, pasted on notice board. A library user can connect automatically and access the website very easily.

YouTube Video

Library has also to provide the link of useful video which is available on YouTube. Library has to create QR code

in to the link of playlist of YouTube. User can connect automatically through their smart phone and learn from it

Events:

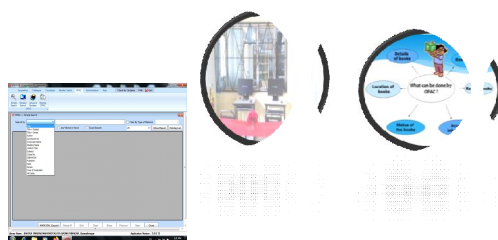
Library has to display any event which will organized by the Institute. A library can create a QR code of information about various events, pasted on notice board. Library users can connect a QR code automatically through their smart phone.

IT Based Facility & Services

1. Library is automated with library software updated version "SOUL 3.0" with Barcode technology.
2. All modules of Software are used for giving better service to users.
3. The software generated all essential Reports.
4. Nlist e-resource e-books and e-journals for free access to users.
5. Soft copy PDF Old Question Papers facility.
6. Access the e-content (Video, Audio, PPT, PDF) for teaching and learning.

Library Automation:

1. Library is automated with library software upgraded version "SOUL 3.0" with Barcode technology.
2. Web OPAC with advanced search facility. The software generated all essential Reports.
3. User can claim the book, reserve the book and renew the books through library network.

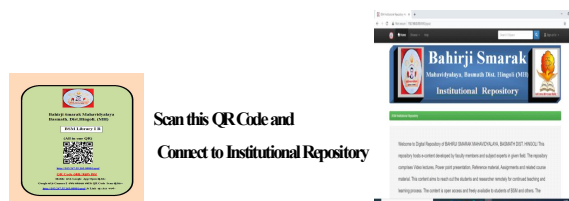
OPAC Simple Search Window:-

Scan QR Code of Web-OPAC:-**Institutional Repository:**

The term 'Institutional Repository (IR)' consists of formally organized and managed collections of digital content generated by faculty, staff and students in an institution. The content of these repositories can be available for assimilation with on-campus library, course management systems, and can also be made available to colleagues and students in other institutions as well as to the public.

Definition:

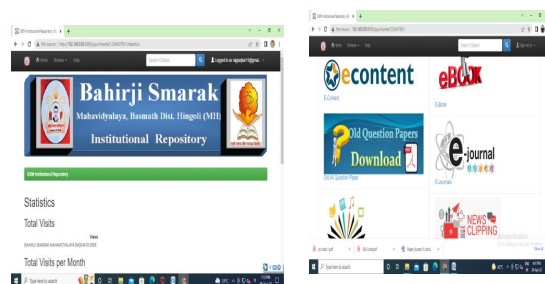
'An Institutional Repository is an organization-based set of services which the organization offers to the members of its community for the management and dissemination of digital materials created by the institution and its community members. It is most essentially as an organizational commitment to the stewardship of these digital materials, including long-term preservation where appropriate as well as organization and access or distribution". -Clifford Lynch, 2003

Bahirji College Basmat Institutional Repository:

The Practice: BSM Library On-Line Information Retrieval:

Access to current and comprehensive information is important to improve teaching and learning activities. For this purpose, BSM Library provides Repository using D-space software with unlimited data preserves and enables easy and open access to all types of digital content to the Staff, students and researchers for unlimited access online information resources. Library staff members monitor this service during pandemic situation working hours of the Library.

- Repositories make it easier for faculty members to get previously scattered or restricted-access materials in a single location.
- To access the e-books, e-journals, PDF old question papers collection for teachers and students. Access scholarly work to prepare lecture notes.
- To promote the principles of open access by providing opportunities for faculty self-archiving.
- To preserve and disseminates a wide variety of content beyond traditional scholarly articles, including datasets, learning objects, electronic theses and dissertations, audiovisual content, and presentations.



Collection of IR and Total Views Shows in this upper Picture
Collection of Institutional Repository: For designing and developing this Institutional Repository “D-Space” open source digital library software is used which can collect, store, pre-

serve, and disseminate digital content – including documents, audio files, images, and datasets – all within a secure, professionally managed environment. Physical Technological Infrastructure: A separate online server is purchased and installed in library to implement this institutional repository. A professional Scanner is made available for scanning of rare books, articles, newspapers clippings, reports, old question papers, photos and other institutional information. Human Resources Library staff is engaged in uploading and managing data in institutional repository. Creating communities within sub communities for library information collection uploading on IR. Faculty and various departments of BSM College collecting information of e-content. To given format by emailing on bsmlibrary1971@gmail.com Scanning of rare books, hard copies of received documents, and Old question papers. News paper clipping file. Library also collect PPT, Audio, Video, PDF study Material etc. and store in softcopy form.

In general, at the launch of the IR or at new phases of development, far reaching communication tools such as campus-wide announcements through QR Code, newspaper articles, letters, post cards, brochures, bookmarks, emails, workshops, flyers and press releases are used to raise awareness.

Quick Response Codes (QR Code) technology is widely used as a medium to deliver a message to end users in coded form. QR codes are two dimensional images that, when scanned by a smart phone's camera, prompt the smart phone to open a webpage or display an image, video, or text Libraries uses QR codes mainly for the purpose of promoting the information services among their users. QR codes have been created to link directly to the URL of the subscribed e-resources and services of BSM library; and embedded to its website for easy and immediate access of users in smart phones. <http://103.247.55.163:8080/jspui/> QR code is printed on page and gifting all department of college. IR link is shared through email, Whatsapp groups of students and also shared with other college librarians, students and society for extent use of this information.

Evidence of Success:

This Institutional Repository is installed on separate online server machine in library. This IR can be accessed scanning QR code online; Web address of this IR is <http://192.168.0.85:8080/jspui/> It has two user interfaces i.e. jspui. Different collection categories and communities are created to store the information. Previous year's old and New Question Paper database is most popular collection of this IR.

Conclusion:-

QR Code is an innovative technology for the libraries helps to the information professional to integrate bi-dimensional code composed of black and white pixels into a squared matrix, containing information to be enjoyed with the help of smart phones or similar devices. Today's world barcode have become quite trendy because of their reading speed accuracy and better functionality. Because of the gaining importance and popularity of QR code, its implementation to libraries is wrathful. It is the power and capacity of the modern technologies that helps every reader to get the information. In the present technology-rich age, library users are becoming tech-savvy. They are continually looking for finding the ways to use technology to simplify their information gathering methods. Hence libraries are needed to be flexible in changing and adapting new technologies in its activities and services to create value added services. Libraries value their relevance as the gate way to information. QR code technology is easy to implement, free to use and growing in popularity. Incorporating them in to library services publicity and marketing campaigns, or around the library building or on the website offers users a more interactive learning experience. This research paper analyzes all library users can access easily on mobile by scanning QR code and visit IR for searching information. Library user can easily get information regarding library collection, old question papers, e-resource, and user-friendly environment. Number of libraries adopted this technological code to spread information worldwide. Web-OPAC more convenient 'Google Like' interface for

searching library books. All library users can access easily on mobile by scanning QR code and visit IR for searching information. Old Question papers, audio, video, ppt, pdf, e-content access very easily so all student users increasing day by day. BSM library came into force in providing various services to its users at home with the help of creating QR Code for Institutional Repository & Web-OPAC. Provide free open access to content. Users just need network connectivity and computers to access them.

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Modern Libraries: Electronic Library And Digital Library

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=====*****=====

Abstract

Electronic library contains by born digital material. Digital library contains converted digital material. E libraries are hybrid libraries, modern libraries are named differently such as virtual library, cybrary. Collection, storage, conversion, preservation strategies of electronic and digital library, difference between e-library and digital library, importance and components of both the libraries, Steps in digitalization. Consortia, MOOCs, SWAYAM, CBT packages.

In the new era of digitalization traditional libraries are transforming into Digital libraries and e-libraries, ebrary or cybrary. These days libraries are not only the collection or storage of books but to also provide access to resources individually, selective dissemination of information as well as current awareness systems with the help of information and communication technology. In this era of information explosion everyone is in dilemma for selection of accurate infor-

mation. As per prevalent traditions of library visits, issue-return of books physically has now been replaced by providing handy material to users on their own device. Parameters of libraries as well as circulation and dissemination of information medias have been changed. Information searching devices also developed new platform for users. With all these advancement policies of collection of information, preservation, collection development is suddenly changed. To survive ourselves it become indispensable to transform our traditional libraries into e-library, Digital library

Modern libraries are of two types namely

1 e-library

2 Digital Library

1 e-library

Electronic library users can read the document they want from their residence or college or office via internet. E-libraries are bound to physical places sometimes, sometimes not.

Definition of e-library:

“A library which provides primary and secondary information electronically through this purpose.”-**By National DIET library Japan**

e-library contains of by-born digital material, for e.g. Audio video CDs/DVDs, graphic texts, multimedia contents, CBT packages (i.e. Computer based training), CDs of thesis, magnetic tapes and computer readable formats.

To develop collection of e-library it become essential purchase of CDs, DVDs, e-journals, e-books, buying access to digital material such as database, LISA, consortia. Databases such as AGRIS, AGRICOLA, PUBMED, MEDLINE, COMPENDEX, INSPEC and many of in every subject provides 24/7 access, 365 days of year to users. e-library also provides integrated search to dictionary, encyclopedia, almanacs. Many e-libraries are there like World Bank e-library, PROQUEST, Pearson e-

library. PROQUEST e-library consists of 2100 to 4800 e-books. Access is on yearly basis, every year 3 to 400 books increase. Provides IP based access. It contains Commerce, Arts, Science, Computer, Management e-books. It is NAAV approved database that also allows making bookshelf.

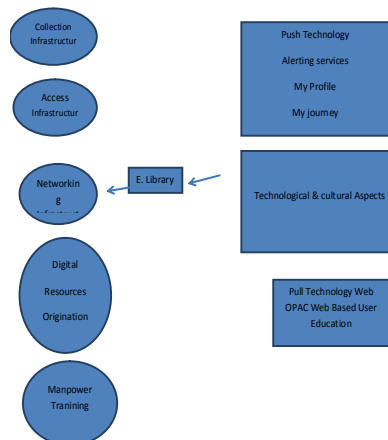
E-libraries can be made up with the help of computers. Enormous open source literature is available online in digital form. Consortium is also a useful modern technological material. Consortia is an association of two or more publishers that provides quality collection of electronic study material. There are different Library Consortia e.g. INDEST, UGC-INFONET, FORSA, INFLIBNET SHODHGANGA, J-GATE, OCLC is an International consortia. INDEST consortium is open model consortia. It is funded by central government. It is useful for engineering College Libraries. There is merging of INDEST – AICTE, UGC INFONET and NLIST namely E-SHODHSINDHU. This is very much useful quality program by INFLIBNET. IIM, FORSA is share budget consortia. FORSA contains material of specific subject.

MOOCS, SWAYAM are also valuable components of electronic library. Massive online open courses are available study materials course wise. Many times they are free of cost. Examinations, assignments, certificates everything MOOC provides online. UDEMY, UDACITY, COURSERA, EDX, NOVOED, FUTURELEARN, MIT open courseware, CANVAS, ONVERSITY are the examples of MOOCS available. Study webs of active learning for young aspiring minds SWAYAM is government initiated program designed to achieve cardinal principles of educational policy namely access, equality and quality. SWAYAM consists of nine national coordinators for best quality contents. SWAYAM provides online refresher courses under CAS for UGC faculty members. For those no need of leave, just enroll, register and login SWAYAM and find study material of course, videos, assignments, online examination and certifi-

cate free of cost at your own desk. There are enormous courses designed academic, hobby related also. University post-graduation programs are going to compulsory one certificate course from SWAYAM.

Remote access to all the e-resources available is possible these days. EzPROXY is a web proxy server to give access from outside the library's computer network to restricted access websites that authenticate users by IP address. With all these advanced technologies e-libraries are prospered. Advantages of e-libraries are requirement of less place, easy preservation, remote access, enormous material. DOAJ, DOAR are the best online examples for open source e-journal, e-books.

Components of e-library :



Digital Library:

“Digital library is where the past meets present to create the future” Dr. A.P.J. Kalam.

Digitalization is a process of translating a piece of information such as books, sound recording, picture or video in to bits. Digital library does not contain by-born digital material but the hard copy material or books converted in digital. There are steps involved in digitalization

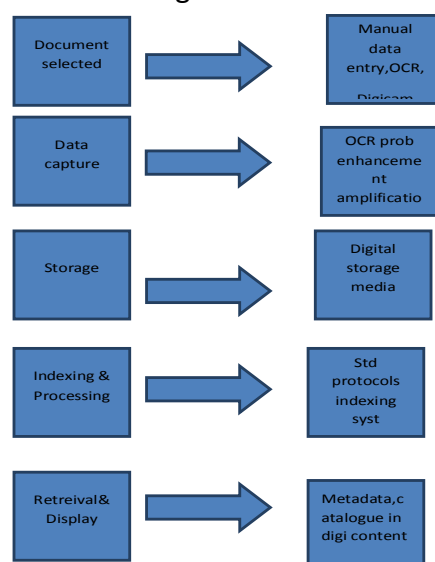
1 Selection

2 Conversion

3 Preservation

4 Retrieval of digitized information.

The following figure shows steps involved in conversion of hard copy material into digital.



Data capturing devices for digitalization process

- Manual data entry
- Scanners
- Digital cameras

Scanners are bar code scanners, flat bed, planetary, sheet fed, drum, V shape scanner. Digital cameras are still camera, handy cam, and video cam.

Preservation strategies of digitalization are migration, emulation, refreshing metadata attachments, trustworthy digital object, Normalization, Bistream copying, technology preservation, digital archeology, Analogue and encapsulation. Subject gateways essential system software for digital library are VISTA, Windows XP, LINUX, UNIX. Application software required is MS office, browser – Webserver, Software –

APACHE, PLUS, IIS after that database software – MySQL, ORACLE, MS ACCESS, Antivirus – NORTON, AVG and LAN internet is essential. Digital software required are DSPACE, e-print, Greenstone.

Digital library provides disseminates digital material, archives, preserve digital material, rare books. Important digital libraries are

- Newzealand digital library
- Network Computer science
- technological reference library
- ArXIV.org
- Science Direct

Thus we cleared difference between electronic library and digital library. electronic libraries are to be said as hybrid libraries, because these contain hard copy of books as well as electronic material. All these modern libraries are also called as virtual libraries, cybrary, ebrary. All these advancements are boon for the society.



Library Portal of Manoharbhai Patel Arts & Commerce College, Salekasa: A Case Study

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=====*****=====

Abstract

Enormous change has happened in use of information and communication technology. Libraries and information Centre have become more available as compared to last decade. Use of information & communication technology for serving library services has becomes easier. In this research paper an attempt has been made by the researchers to create a Google site and provide library services through it. This portal has been created by the library department with the aim to fulfill the needs of the reader in the period of COVID19. Today on date this portal has received the response of more than 1025 readers. This paper explains how a librarian can crate, design, and manage a portal by using Google site and

Introduction

In the modern digital information age a well defined mechanism is needed to organize, store and access information. Libraries and information centre are not exceptional from this digital revolution, hence librarian try to develop their own web portal for academic purpose. Today world is enjoying the digital revolution of library services. Indian academic library is in a very pathetic condition in the modern era due to apathy of the government, unskilled manpower, lack of space, lack of updated technology, ignorance about library and information science curriculum which are the main issues related to library. But due changing need of users, we are lagging behind in the development of textbooks compared to other countries.

In the era of information technology, every company tries to reach its customers through its website. In this age of competition, promotion and dissemination are of unique importance. The library sector is not spared from this but designing library portal should be critical and more Confusing process but Google site has made easy by providing Google site (site.google.com) to library professionals. Google Sites may be a structured wiki- and web page-creation tool offered by Google as a part of the Google Apps Productivity suite. The goal of Google Sites is for anyone to be ready to create a team-oriented site where multiple people can collaborate and share files. (Wikipedia). In this article, an in-depth study of the library portal has been attempted. Through this portal, information about the library, library staff, library advisory committee, updated information of libraries, library services and facilities, other websites.

Library (History):-

Department of library was established in 1994. College offers degree courses in Arts & Commerce Faculty, PG

Courses in Hindi, Political Science & History. Library Is On Continuously Developing Ground. In Session 2012-2013 Library installed the LIBMAN automation software and current session college update this cloud based version with web OPAC and MOPAC app. We have enrich with subject Encyclopedia, Dictionaries, Maps, Magazine, Journals, Old Bound Volume of Journal Competitive Books etc., other hand library subscribed journals and magazine of different subject. Library has also subscribed NLIST consortia and membership of National Digital Library.(NDL).Various student oriented activity &programme are arranged like student orientation programme, IT awareness programme, celebration of librarian day, reading motivation day ,book exhibition.

What is Portal?

Before turning to the subject of library portals, it is very important to know what exactly a portal and also the difference between a portal and website. Websites are related to a single topic while portals are built around multiple topics. Internet portals originated as the libraries of the web. The word “portal” meaning “door” has been used to characterize. Websites commonly for offering search and navigation tools. Circa 1996, a portal was used to catalogue the available content from the internet, acting as a “hub” from which users could locate and link to desired content.

Definition

Howard Strauss, Manager of academic applications at Princeton, defines a portal as a “gateway to web access” or “a hub from which users can locate all the web content they commonly need.

Requirements for creation of Portal

Following are three simple steps for creation of portal.

1. Computer with internet access
 2. Google account
-

3. Log in at sites.google.com with your Google Account

Structure of Library portal (<https://sites.google.com/view/mbpclibrarysalekasa/home>) is divided in three part i.e Detail about library, Library services and Activity of department & college.

1. Detail about library - Online learning has become a buzz word in current education system. It has gained supreme importance especially in this post-pandemic critical situation. Therefore, under such circumstances, the role of a librarian for determining, finding and recommending adequate source material to the students and staff gains pivotal importance.

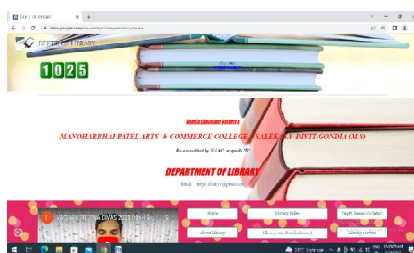


Fig.1 Home page of Library Portal

(<https://sites.google.com/view/mbpclibrarysalekasa/home>)

It is deeply connected with improving teaching learning process in the college. In the light of this understanding, the Department of Library and Information Science of Manoharbhair Patel Arts and Commerce College, Salekasa has designed a dynamic Google site for the students of the college in 2020. The Google site acts as a digital platform for finding and downloading required study material. Almost care has been taken to make the site all-inclusive, updated and easy to use. This home page has been designed title on the top of the page. It has Institution name and website on one side. Below the header image menu bar has been provided with the following option

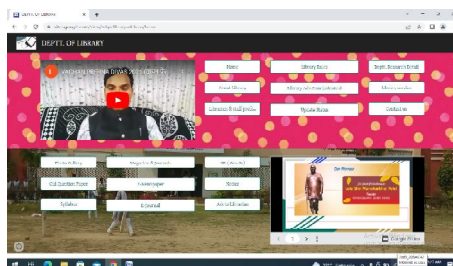


Fig.1 Home page of Library Portal

(<https://sites.google.com/view/mbpcllibrarysalekasa/home>)

Library portal is created with the help Google site with free of cost .This portal can handled with help of internet anywhere and anytime. In college student can access this portal with help android mobile. In the first part of the portal contain

1. The introduction of the library it includes Library History.
2. Rules regulation.
3. Departmental research detail.
4. Librarian and Library staff information.
5. Library advisory committee.
6. Library Update information.
7. Contact details.

2. Library services- Another part of the portal that is extremely important involves library services & Links Related to E-resources, E-Books, E-Journals, Audio & Video Resources,

1. University related link like old question papers; syllabus and government circular.
2. Subscription lists of magazines and research journals, N-LIST consortia and notices link by the library for student service.

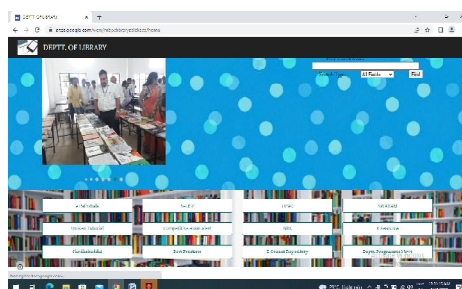


Fig.2 Library services offered by of Library Portal
(<https://sites.google.com/view/mbpclibrarysalekasa/home>)

3. Subscription lists of magazines and research journals, N-LIST consortia and notices link by the library for student service.
4. For researchers links of Shodhganga, Shodhgangotri, Spoken Tutorial, Shodhshuddhi,
5. Course Delivered by SWAYAM ,NPTEL are available free of cost for students
6. Detail of subscribed magazine and journal information are available for knowledge.
7. Government regulation link are provided for access.
8. Activity run by department of library is informed to student with help notice link.
9. Competitive Exam Alert link for student awareness.
10. In this newspaper section, newspapers in three languages link are available.
11. The library is partially computerized with the help of a Library Management System(LIBMAN) software with help OPAC module students can check the titles, authors, publishers of the books in the library ,also Master software design new module i.e M-OPAC app.
12. A link to the E content module which inform about research detail.
13. N-List Consortia Search option is given for access free E journal & E book.

According to the academic calendar of college various activity is run library & other department. The link give complete details i.e events Geo tag photo, events newspaper cutting and videos of the activity until.

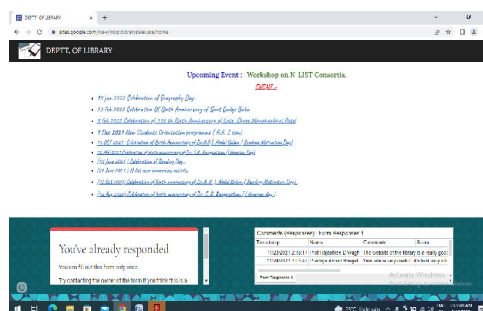


Fig.3 Activity of Department & College
(<https://sites.google.com/view/mbpclublibrarysalekasa/home>)

1. Departmental YouTube & Face book page link are provided to portal for access departmental & college activity
2. The relevant information about the activities to be celebrated in the current years like birth & death anniversary, educational activities link provided through the portal.
3. Newspaper clipping service is provided for student for preparation of debate competition & others.

In this paper, the library portal of Manoharbhair Patil Arts and Commerce College, Salekasa is studied. On the basis of above research work, following conclusion has been drawn by the researcher.

1. This portal help to organize educational resources and other relevant information & also help to reach up to relevant users.
2. At the same time an attempt has been made to keep the complete details of how many users have visited with help of free counter state. Today 1025 users have visited this portal

since 2020 till date; it is clear that students as well as users from other branches are using this portal. In this age of information and technology, it is seen through this activity that the rules of library science are being followed.

3. In this portal, a comment box is provided for the user to register his opinion. This opinion or suggestion is beneficial for improving library portal. At the same time, the facility of maintaining customer visit records has been made in this portal.

4. As per the oral feedback obtained from teachers to whom students communication that they have been benefited by college portal, it is noted that the objective of creation of this portal is fulfilled.

5. This is Best Practice run by department of library, which serve E Resource & E Content free of cost to users.

This is an innovative activity in librarianship; this effort has been made through researchers to provide user services according to the changing nature of the library.

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RFID FOR LIBRARIES

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Saraswati Sangeet Kala Mahavidyalaya, Latur

=====*****=====

Abstract :

Present paper is intended to give overall view of RFID (Radio Frequency Identification) technology with relation to library use. It is an automatic identification system like barcode, smart cards RFID is new generation of auto identification and data collection technology which helps to automatic business processes and allow identification of large number of tagger object like books, using radio waves RFID is wireless data collection technology that uses electronic tags for storing data. It is based on microchip technology and the information contained on microchips in the tag affix to library materials is read using radio frequency technology Shortly we can say that it is a combination of radio frequency based technology and microchip technology It works on Tags, Reader or Sensor, Antenna

Keyword : RFID, Advantages and Disadvantages, Components:

Introduction:

Among the various technologies the RFID seems to

be dominating in the information industry as means to improve efficiency in library activity and sources in far this one of the millennium that had invaded the library although the technology is considered young and emerging initially in Indian context and it paused on electronics. The concept of RFID applications in libraries is only in workshop/conferences seminars and reality has to be realized in libraries in the year to come RFID technology as means strengthen automation activity of libraries with view to improve the efficiency of information sciences to the user community in the light of the Dr. S. R Ranganathan's fourth law

As the name indicates RFID is the technology that uses radio signals to identify specify objects. A part from the new age technologies like the internet, E-commerce, barcode system smart-chips. RFID tool has given security solution and their application is helping enterprise and different sectors RFID system have been used in libraries for book identification, self check-out and for converting of library books and AV materials. These application can lead to significant savings in labor costs, enhance customer service and lower book the can provide a constant record update of media collections

Definition of RFID :

A wireless communication technology that is used to uniquely identify tagged object is called RFID.

1. According to Wikipedia Radio frequency identification is an automatically identification Method, relying on storing and remotely retrieving data using devices called RFID

2. According to the RFID journal glossary "A method of identifying unique item using radii waves typically a reader communicates with a tag which holds digital information in microchip

Components of RFID System**1. Tags :**

Tags are the heart of RFID system. It comes in three

general varieties. Passive, active or semi-passive Tags carry all essential data about an item which may be required for inventory control. Tags come in a wide variety of shapes and sizes, low frequency RFID systems (30 KHz to 500 KHz) have short transmission ranges of generally less than six feet. The tags used in RF technology for libraries are "Passive" tags "Active" tags, which have their own supply, substantially larger and more expensive than the tags used in library applications.

2. Reader or Sensor :

RFID readers exist in two types. One type reads the information on the tags going by and communicates that information to a server. The other turns on an alarm if materials are not properly checked out.

3. Antenna :

The antenna produces a radio signal that activates the tag and reads and writes data to it. It is also known as a sensor interrogator. Reader antennas are the channels between the tag and the reader. Antennas are the channels between the tag and the reader. An antenna enables the chip to transmit the identification information to a reader.

4. Server :

The server on which the software that interfaces with the integrated library software does the communication gateway among the various components. It receives the information from one or more of the readers and exchanges information with the databases.

5. Sensor Gate

6. External Book Return.

7. Staff And Conversion Station:

8. RFID Label Printer

9. Handheld Reader

10. Self Check Unit

Advantages of RFID System :

1. Rapid charging and discharging of materials

The time required for circulation operation: 10. Self check unit. e reduced with use of RFID The information on the RFID tag can be read faster than that of the barcode labels So it saves the time of library staff

2. Self check-out/check-in :

For patrons using self check-out, there is a marked improvement because they do not have carefully place materials within a designed template and they can check-out several items at the same time Patron self check-in shift that work from staff to patrons

3. Theft prevention.

4. Automated material handling

5. No waiting time for library users.

6. High-speed inventorying.

7. Automatic issue/return.

8. Stock verification and control.

Disadvantage of RFID System :

1. Accessibility to comprise:

It is possible to comprise RFID tag by wrapping it in two to radio signal. three layers of household frill to block the radio signal..

2. High cost :

The infrastructure cost of RFID is very high

3. Chance of Removal of exposed tags

4. Manpower and skilled staff required.

5. Skilled reader required.

6. Tag collision.

7. Continuous electricity supply

8. Space problem.

Conclusion :

When a new and old technology completes the new technology is never an exact match. Typically the new has some features that are not in the old, but lacks some basic characteristics of the old. Therefore the old and new usually

exist alongside RFID is the latest technology to be used in library theft detection System RFID application in libraries have opened the doors for library community to serve their clientele in better ways. It helps not only reducing the workload but also identifying the theft, which reduce the loss of book RFID has many application in libraries that can be highly beneficial, particularly for circulation taff Rockefeller university in New York may in the united states to utilize this technology 8

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Role of E-Recourses in Research

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Abstract

E-resources are playing an important role in the process of research. These are useful to decrease time and efforts and increase the speed of research. These paper discusses the necessity increasing the information resources in electronic form to meet the todays de-mind of researcher about information. It contains e-books, e- journals, e-zine (magazine), e-thesis and dissertation (ETD), e- news papers, e- reference sources etc., all these resources are stored in the computer in an electronic form, which is called as database. These e-resources are expedient to use, obtainable at a reasonable cost and can be accessed from anywhere and by many users can use concurrently, these databases are most

advantageous utilize to put in to the academic excellence and achievement of its user community

Keywords: E-Resources, E-Books, E-Journals E-Newspaper and E-Thesis

Introduction:

Information and communication technology entered in the every field and activity of human life. It has brought a revolution in electronic publication, access and delivery mechanism. Research is an important activity. Development of human life depends on research. Research activity is performed in all subjects in higher education Higher education department of central government and University Grants Commissural ways promote to research activities. Information resources are base of research. With affect of information and communication technology information resources become more useful and easy access with a new form of e-resources. With effect of Information and communication technology, information becomes available in lot of quantity which is known as 'information explosion'. Therefore the use of electronic resources is the need of the hour of the present day. E-resources are available in the form of E-Resouces

Types of E-Resources

- **E-books:** With effect of ICT book publication process starts with creating matter in ironic form. It is easy to publish in electronic form. So trend of publication is on the of e-publishing. Today so many books are available in electronic form. E-book read use of e-boos also available in the market today. E-books is the many formats competing for prime time, including Adobe PDF, Microsoft Reader, eReader, Mobipocket Reader, EPUB, Kindle and iPad

E-journals: Journals publishing in the print form also start to publish in electronic form. There no extra efforts for it. Now market of publisher is a world. An e-journal is very important part of every library collection. E- Journals are one applica-

tion of information technology

- **E-databases:** Creation of database is a time consuming process. But e-databases can be acting easily. It is collection of electronic data. Such as Information And Library Net collects the data about Ph. D. thesis and made an e-database of the Shodhganga These databases are contained with PhD thesis and Dissertation published through e-format.

- **E-mails:** Mails are useful information in research process. It is a electronic form of mail.

- **E- News Paper:** An E- newspaper is also known as online newspaper or web newspaper that exists on the World Wide Web or internet.

- **E- Magazines:** An E-Magazine is very important part of every library collection. E- Magazines are one application of information technology.

- **World Wide Web's:** Web is a media to display information widely. All institutions in the world are using this media. Researcher can access this information easily.

- **Social Media:** Web blogs, facebook, Whatsup and twitter are media devices that useful to discuss or to know the thoughts of experts with persons in wide area. Researcher could get the knowledge about these things from the persons who are working in his research area. All resources available in the electronic forms are known as e-resources. It includes all resources earlier available in the print, manuscript etc. forms and new forms such as worldwide webs, blogs, twitters etc. E-resources can be access on computer, laptop, internet, mobile i-pod, etc. With effect of information explosion, lot of information resources available in the field of higher education. Manually handling of these resources is impossible. So, use of electronic form of these resources is compulsory.

Advantages of e-resources:

Access to every document by anyone; from any where

Retrieval of e-resources is quicker than print resources

The users can be guided to the document by providing a link.

Easy to search the text

E-resources can access from any place of the world at any time.

E-resources can access by more than one person at a time.

Information can be down load and print.

Retrieval of e-resources is quicker than print resources

Cost of e-resources is less than print resources.

E-resources are available in the audio-visual form. So it is easy to understand.

We can search particular information from huge information source.

Store and carry to e-resources is simple.

• Need of E-Resourcess:

E-Resources enable the librarian to provide better service to the user community. The few considerable points are mentioned bellow;

To get access to an information source by the more than one users.

These can be found easily by the user.

Amount of time spent on the E-Resources use.

Analyses the purpose of using e-resources by respondent

E-Resources can be searched quickly.

Know different types of e-resources commonly used by respondents

These resources can be stored in huge amount.

To collect, store, organize information in digital form.

Use of e-resources:

Research contributes new as well as additional knowledge to the existing stock of knowledge, making for its ad-

vancement. Most of the countries and multinational companies put their best brains in research. Because of online sources research becomes much easier than ever. Now a day internet is providing great treasure of information in the form of digital resources, soft material and so on. They don't need to visit libraries, book shops and other places where information can get. They just hold a mouse of computer and uncountable bites of information available on their screen. In present era most of the publishers publish their publications in online modes.

E books, e journals, research databases; bibliographical databases are available in wide range. Governments of several countries are also taking great interests in the online information dissemination. Indian government has started INFLIBNET. This program is one of the handsome example of such things. INFLIBNET took keen interest in research from its establishment. It is working as a national repository of research for Indian government. 'Shodhganga', the thesis repository and 'Shodhgangotri', the program of research in progress, N-list and UGCInfonet are well known platforms for the researchers in present situation. In the context of agriculture research, it could be say that government as well as private firms are making available information in 'e' form in wide range. CeRA consortia, ICAR database, AGRICON, CAB, databases etc. are available with huge data for agriculture research. Some open sources and e-books, e-journals are also available on internet. Researchers in the field of agriculture should take such opportunities for compilation of their research work.

Research is a process includes different types of activities. Every stage of re-search required different type of information. Researcher should find the research done on the tentative area of his research to decide the research topic. With the help of internet we can find the topics on which

research completed and on which research will be carry. The best media for this. After deciding the topic or area of research, researcher should find the literature related the same area of his research to review. These literatures should find from all possible resources. E-resources are easy to find and search particular information. After review of literature, researcher made a plan of survey. Survey can be made by interview or questionnaire. Interview can be arrange on mobile or chat on method by using internet. Questionnaire can be send and receive by e-mail. We can also arrange the online filling system of questionnaire. It means primary data required for research process can be acquired in electronic form. Process on data collected by questionnaire and interview is become easy in this form.

Classification and calculation with the help of computer save the energy and time of researcher. Researcher can be classify data as per the requirement of objectives and create graphs in different types. It is useful to increase the speed of research process. Research process become easy and fast with the help of e-resources. E-re-sources save the time, money and energy of researcher.

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A Brief Literature Review of Use of QR code in Academic Libraries

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Abstract

Purpose: - The purpose of this paper is to know the benefits of QR code & what are the different services provided by the academic libraries using QR code.

Design/Methodology/approach: - The Integrative Literature Review (ILR).

Finding: - The most of the literature articles are associated with basic information and introduction about QR code, benefits of QR code etc. but very few articles are associated with the actual experiments done with QR code & provide library services.

Practical Implication: - This review is useful in the area of research in QR code, Smartphone library services, mobile phone in the academic library, virtual reality services etc.

Limitation: - Since the study was deployed by one person on one specific area of interest. Other articles on QR code are

not considered here, even numbers of literature search results are very high. In addition, only online articles are examined.

Originality/Value: - This paper contributes to QR code literature by providing ILR in the field QR code in the library. The paper points to pathways for future research in the QR code base library services.

Keywords: - QR code and Libraries, Academic library, QR code in library/service, Mobile Library, Smartphone library services.

Paper type: - Literature Review

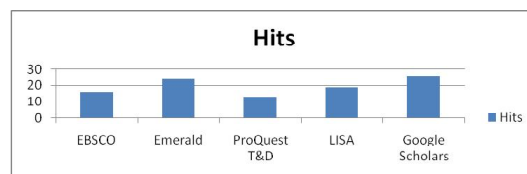
Introduction: - This literature review done using online database like Emerald, EBSCO, ProQuest dissertations and theses, Library and Information Science Abstract (LISA), Google scholars and reference books etc. the following terms used at the time of searching literature review.

QR code and Libraries, Academic library and QR code, QR code in library/service, Augmented Reality Application for Libraries, Mobile Library.

Table 1 Resources used for Literature Review

Sr.no.	Databases	Terms	Hits
1.	EBSCO	Library & QR code, QR code in library	16
2.	Emerald	QR code Library, QR code in Library service	24
3.	ProQuest T&D	Academic library and QR code, QR code Library service	43
4.	LISA	QR code in Libraries, QR code & Library (Proquest)	19
5.	Google Scholars	QR code in library	26
	Total		128
Out of above hits 32 articles are selected for this literature review.			

Figure 1 Resources used for Literature Review



In the 1994, by Denso-Wave was invented a QR code. Although it was used to track vehicles during manufacturing,

but today in 2018 there is the immense use of QR code in anywhere. Because it is simplicity to access information, create authentication, security for information, etc. and other hand growth of Smartphone users. The popularity of the QR code increased especially after the revolution in mobile devices. It becomes easy to reach to the information source through this small code. Several libraries have implemented this technology for delivering various services to users.

Libraries are the main source of information in any organisation. Moreover, the library materials being get used based on its availability and accessibility. This is mainly dependent on the acquisition of good information sources and then to user need based information services. **Ahearn, C. (2014)**, 'QR Codes Taking Collections Further'. This paper shows that quick response (QR) codes are an excellent tool to use in school libraries to enhance access to information. **Ashford, R. (2010)**, 'QR Codes and Academic Libraries Reaching Mobile Users' This article discusses the benefits of QR codes, how QR codes are generated, how libraries are using QR codes, and how they can help academic libraries reach mobile users. **Barker, K. R., Attridge, E., Bennett, J., Hiserman, T., Horne, A. S., Moody, D., ... Vaughn, P. (2012)**, 'The implementation of embedded quick response codes into library resources to improve service delivery'. This paper highlights at least two uses for QR codes that could solve a problem or streamline a service in the library. It also discusses how to choose the best QR code generator and reader so that the library can make official recommendations to patrons, how to educate library staff about QR codes and keep them informed about how the codes could be used in the library, and how to integrate the codes while simultaneously educating patrons about their use. **Benitez Juan, B., Clavero Campos, J., Codina Vila, M., and Perez Galvez, A. (2011)**, 'the Handheld Library: Developments at the Rector Gabriel Fer-

rate Library, UPC'. The purpose of this paper is to emphasize the mobile services developed by the Rector Gabriel Ferrate Library (BRGF) of the Universitat Politecnica de Catalunya (UPC-Barcelona Tech) in Barcelona, Spain. One of the main topics of discussion is the use of QR codes to deliver information to mobile devices. **Berndt-Morris, E., and Chrenka, K. (2014)**, shows that the approach of using quick response (QR) codes in a large US research university library.

Bottomley, J. (2012), the library at Leeds Metropolitan University introduced QR codes across the library at points at which it was thought to add value for students. This article describes a project in which codes were added to the library floor plan key to link to the relevant pages of the library website. **Bozek, A., and Kaminska-Mazur, L. (2012)**, Hybrid Book –This article is about a hybrid book, a new phenomenon in the publishing market, consisting of a combination of using a printed QR code and a traditional codex. **Braak, P. (2010)**, Special attention is devoted to the new possibilities presented by the QR code for libraries, and several initiatives of its application in these institutions are described, including the experimental use of the QR code in the online catalogue of the University of Bath Library and the library of the University of Huddersfield in the UK. **Dempsey, M. (2011)**, QR Codes: Fun Fad or Valuable Tool for Libraries. This paper, discusses how the QR code is a valuable tool for libraries. **Elmore, L., and Stephens, D. (2012)**, this study found that, although awareness and use of QR codes in the UK was increasing and that with certain types of QR codes, when used in academic libraries, some were more successful than others were, and none of them was as successful as anticipated. **Ewel, A. (2014)**, Orientation using QR codes: iPads in the library. They had the idea of using iPads and QR codes to create an active orientation for their ninth graders. **Fabbrizzi, A. (2014)**, this paper intends to present how QR codes allow a

link between the Dewey-classified shelves and the catalogue directly from the information signs. **Farkas, M. (2013)**, in academic libraries, using QR codes or other technologies to bridge the divide between physical and digital holdings will help patrons navigate this often-perplexing information landscape. **Fletcher, J. (2010)**, this article explains how QR Codes can help library customers easily access URLs on mobile devices. **Gambari, S. (2010)**, Quick Response Code in Library Services. The Half Hollow Hills Community Library (New York), the Abilene Christian University (Texas), and the San Diego State University Library are using the QR code to give their users access to guides, manuals, a library map, and audio and video files. The University of Huddersfield Library (United Kingdom) applies the QR code to various areas: links to electronic resources, explanatory videos, phone numbers, and as a support of the library's OPAC. The University of Bath Library's online catalogue automatically incorporates into catalographic records, both of monographs and journals, QR codes encoding author, title, and call number. However, the widespread use of QR codes is due to the fact that users own a smartphone and that many OPACs are made to be explored and navigated with such types of device. **Gonzalez, A. L. (2012)**, Provide practice information through QR codes. **Green, J. (2013a)**, QR code project as an exercise in embracing technology alongside the promotion of library electronic resources, they embarked upon a project to link their digital collections with the physical shelf space during the summer months of 2012. **Green, J. (2013b)**, Jim Green reports on a project at the University Of Exeter to use shelf markers with QR (quick response) code links to the Library catalogue alongside the physical books, promoting the availability of corresponding e-book versions and mobile access to resources. **Hoy, M. B. (2011a)**, used QR codes to promote services and help library users find materials quickly and independently. This article explains what

QR codes are, discusses how they can be used in the library, and describes issues surrounding their use. **Kolodziejczyk, E. (2013),**. The researcher said that using QR codes and augmented reality, libraries, and universities can show that they are modern institutions that are able to strive for users, doing so in an interesting and entertaining way. **Kovacs, R. (2013),** the author conducted a questionnaire survey on a social networking site to which 130 people responded. The survey provides a picture about the awareness and use of QR codes in libraries and about its reception among librarians. **Lo, L., Coleman, J., and Theiss, D. (2013),** Putting QR codes to the test. A survey was used to learn whether patrons find it easy to use a QR code, to gather patrons' opinions about several possible library uses for QR codes, and to solicit additional ideas for using QR codes in libraries. **Lombardo, N. T., Morrow, A., and Le Ber, J. (2012),** these authors said that, the use of Quick Response (QR) codes to provide instant mobile access to information, digital collections, educational offerings, a library website, subject guides, text messages, videos, and library personnel. Applications in use at the Libraries of the University of Utah will be reviewed to provide readers with ideas for use in their library. **MacKinnon, P., and Sanford, C. (2010),** the purpose of their paper is to describe why and how Contra Costa County Library is using QR codes and a mobile patron support system to deliver library service to mobile phone users through a service called "Snap & Go". **Mairn, C. (2012),** This author highlights three things that libraries can do to prepare for the mobile experience, including creating a mobile-optimized Web site, using Quick Response (QR) codes, and implementing Google Voice for a free text messaging reference service. **Massis, B. E. (2011),** QR codes in the library. The purpose of this column is to examine the use of quick response (QR) codes in libraries and the variety of uses. The column suggests specific uses of this moti-

vating technology for libraries to enhance their own offerings to users with greater potential and possibilities. **Mires-Richards, E., Ackerman, G., Murphy, E., and Goddard, S. (2013)**, In their article, authors from the University of Westminster describe how rebranding from library “induction” to “orientation” led the team to rethink how to promote the library to students using a range of tools, from QR codes to audiovisual media. **Mohamed, S. (2014)**, Researcher shows the reports on an innovative project that grew out of the desire to facilitate access to information using Quick Response (QR) Codes. The article explores the need to use QR Codes in the Brand van Zyl Law Library, University of Cape Town (UCT), for accessing academic library services. **Norem, M. (2012)**, QR Codes: Providing Unique and Value-Added Information to Library Users. Libraries can use Quick Response (QR) codes to engage users in programming, reader’s advisory, upcoming events, and point-of-use instruction. **Pavey, S. (2011)**, Author have added printed QR codes to their book covers, which link to YouTube videos of the authors talking about their books. **Pulliam, B., and Landry, C. (2011)**, The authors discuss how Quick Response code technology can be used to market library services innovatively by introducing them more flexibly. **Ratajeski, M. A., and Kraft, M. A. (2015)**, In this paper author discuss use of QR Codes to Promote E-Books in Medical Libraries. **Ratledge, D. (2011)**, a library that would launch online textual, audio, or video content designed to tell about the specific part of the library the person is currently standing in. **Reese, P. E. (2014)**, authors said that Using “book dummies” as the base, a template was developed that contained a book cover image and a QR code that would lead the patron to the book in the catalogue. **Robinson, K. (2010)**, the work describes the use of mobile phones by the library at the University of Bath in the UK. The library reviewed possible applications for QR (Quick Response) codes. **Schultz,**

M. K. (2013), a case study on the appropriateness of using quick response (QR) codes in libraries and museums, at Ryerson University Library and the Museum of Inuit Art to determine the extent to which QR codes are appropriate for use in libraries and museums. **Sekyere, K. (2012)**, It describes a step-by-step approach to developing a system to track the scans of QR codes by library users for assessment. **Semenza, J. L., Koury, R., and Gray, C. (2013)**, in their authors provide a comprehensive step-by-step plan on creating a Zombie Library, a physical collection of e-books using QR codes. **Stainthorp, P. (2010)**, QR codes can be used to provide users with links to additional information about resources and services. **Walsh, A. (2009)**, This paper aims to explain the nature of quick response (QR) codes and their possible applications in libraries. **Walsh, A. (2010)**, the library at the University of Huddersfield has used QR codes to deliver context-appropriate help and information to blur the boundaries between the physical and electronic world. **Walsh, A. (2011)**, this paper aims to consider the use of technologies including GPS, QR codes and RFID tags to personalize the learning environments in academic libraries. **Wells, V. A. (2012)**, Libraries are exploring the use of Quick Response (QR) codes to market to users and connect them with libraries' services. The University of the Pacific has been experimenting with QR codes innovatively to introduce first-year music majors to the physical music library materials via a QR code scavenger hunt. **Wilson, A. (2012)**, A pilot project performed in the Eda Kuhn Loeb Music Library of the Harvard College Library sought to determine whether library patrons actually understand and use QR Codes. **Wozniak, C. (2011)**, in this article, Wozniak discusses what QR codes are, their purpose and their potential uses by information professionals. **Xu, F. (2014a)**, This study is expected to facilitate the growth of QR Codes' visibility and success and its mainstream adoption. **Yarmey, K., and Swartz, T.**

(2012), implementation of quick response (QR) codes, an academic library can interact with science faculty and students on their own turf.

Conclusion: - The present literature review indicates the various benefits of a QR code and how most of the library in the world wide used QR code to deliver mobile base library services. Still, there is lots of scope & different approaches to design more services using QR code. At the same time, the review holds important implications of QR code in a practical manner as well as for future research. The main contribution of the review is to provide an overview of the peer-reviewed literature in the area of a QR code to the library services for Smartphone users.

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डिजिटल लायब्ररी : ग्रंथालय विकासाच्या दृष्टीने एक पाऊल पुढे

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भारत देश हा विकसनशील देश म्हणून ओळखला जातो. विकासाच्या दिशेने मार्गक्रमण करत असताना विविध क्षेत्रांमध्ये मोठ्या प्रमाणात प्रगती झालेली दिसून येते, उदा. औद्योगिक क्षेत्र, कृषी क्षेत्र, वैद्यकीय क्षेत्र, क्रिडा क्षेत्र, सांस्कृतिक क्षेत्र, शिक्षण क्षेत्र इत्यादी. शिक्षणक्षेत्रामध्ये झालेल्या प्रगतीचा विचार करता आपल्याला असे दिसून येते की, यामध्ये शिक्षण हा सर्व क्षेत्राच्या विकासाचा मूळ गाभा असून शिक्षणाशिवाय कोणत्याच क्षेत्राचा विकास होणे शक्य नाही, ही बाब लक्षात घेऊनच शिक्षणाचा अधिकाधिक विकास होण्यावर भर देण्यात आला आहे. शिक्षण हे केवळ शालेय किंवा विद्यापीठापुरतेच मर्यादित नसून शिक्षण ही निरंतर चालणारी प्रक्रिया आहे. शालेय किंवा विद्यापीठीय शिक्षण पूर्ण झाल्यानंतर विद्यार्थ्यांना, संशोधकांना किंवा सामान्य वाचकांना आवश्यक असणारे ग्रंथ आणि ग्रंथेतर साहित्य उपलब्ध व्हावे यादृष्टीकोनातून ग्रंथालयांची निर्मिती झाली. शिक्षणक्षेत्रामध्ये ग्रंथालयांची निर्मिती ही एक मोठी क्रांतीच होती. यामध्ये ग्रंथालय शास्त्राचे जनक म्हणून ओळखले जाणारे "डॉ.एस.आर. रंगनाथन" यांचा महत्त्वाचा वाटा असून त्यांच्या प्रयत्नातून भारतात ग्रंथालयांचा विकास झालेला पहावयास मिळतो.

डॉ.एस.आर. रंगनाथन यांच्या मते, "ग्रंथालये ही लोकशाही मूल्ये जोपासणारी सार्वजनिक संस्था आहे". १९ व्या शतकामध्ये सार्वजनिक शिक्षणाला पूरक ठरलेली चळवळ म्हणजे ग्रंथालय चळवळ होय. चळवळ हा शब्द या ठिकाणी ग्रंथालयांचा विकास या अर्थाने आहे. बडोदा संस्थानांमध्ये महाराज सयाजीराव गायकवाड यांनी या चळवळीद्वारे सार्वत्रिक शिक्षणाचा प्रचार आणि प्रसार केला. अशा अनेक तज्ज्ञांच्या प्रयत्नातून ग्रंथालयांचा विकास साध्यास मदत झाली. आजच्या या स्पर्धेच्या युगामध्ये विद्यार्थ्यांना, संशोधकांना किंवा सामान्य वाचकांना त्यांना हवे असलेले साहित्य हे एकाच ठिकाणी मिळण्याचे एकमेव ठिकाण म्हणजे ग्रंथालय होय. ग्रंथालयांचा झालेला विकास हा पर्यायाने राष्ट्राचा विकास मानला जातो. कारण, भविष्याच्या दृष्टीकोनातून विचार केला तर तरूण वर्ग हा विकसित देशाचा आधारस्तंभ असून त्यांच्या ज्ञानाची भूक भागविण्यासाठी ग्रंथालय हा प्रमुख स्रोत आहे. ग्रंथालयाच्या माध्यमातून वाचकांच्या वाचनीय गरजा भागविल्या जातात. थोडक्यात कोणताही वाचक त्याला हवा असलेला प्रत्येक ग्रंथ विकत घेऊ शकत नाही, परंतु, ग्रंथालयाच्या माध्यमातून त्याला आवश्यक असलेला ग्रंथ उपलब्ध होवू शकतो. यातून वाचक वर्गाला मोठ्या प्रमाणात फायदे होताना पहावयास मिळतात. यामध्ये डॉ.एस.आर. रंगनाथन यांनी सांगितलेल्या ग्रंथालयशास्त्राच्या पाच सुत्रांचा अंतर्भाव असलेला आपणास पहावयास मिळतो. ते सिद्धांत पुढीलप्रमाणे आहेत:

१. ग्रंथ हे उपयोगासाठी आहेत.
२. प्रत्येक वाचकाला त्याचा ग्रंथ मिळाला पाहिजे.
३. प्रत्येक ग्रंथाला त्याचा वाचक मिळाला पाहिजे.
४. वाचकांचा तसेच ग्रंथालय सेवकांचा वेळ वाचला पाहिजे.
५. ग्रंथालय ही वर्धिष्णू संस्था आहे.

आजच्या २१ व्या शतकामध्ये मोठ्या प्रमाणात प्रत्येक क्षेत्रामध्ये स्पर्धा असलेली आपणांस दिसून येते. या धावपळीच्या युगामध्ये ग्रंथालयामध्ये जाऊन ग्रंथ घेणे, परत करणे यासाठी वाचक वर्गाला वेळ मिळत नाही, त्यामुळे ग्रंथालयाकडे येण्याचे वाचकांचे प्रमाण कमी झालेले पहावयास मिळत आहे. तसेच ग्रंथालयाच्या मर्यादित वेळा, ग्रंथालयाचे नियम, सुट्टीच्या दिवशी असलेल्या ग्रंथालयाच्या सुट्ट्या यामुळे वाचक वर्गाला ग्रंथालयांच्या नियमानुसार वेळेचे नियोजन करणे अवघड असल्यामुळे ग्रंथालयाकडे उदासीन दृष्टीकोनातून पाहिले जात आहे. त्यामुळे, आज अनेक चांगली ग्रंथालये बंद होण्याच्या मार्गावर दिसून येत आहेत. परंतु ग्रंथालयाचे अस्तित्व टिकवून ठेवायचे असेल तर आज गरज आहे ती

म्हणजे ग्रंथालयाला एक पाऊल पुढे नेण्याची म्हणजेच "डिजिटल लायब्ररीची". या डिजिटल लायब्ररी मध्ये अंतर्भूत असलेल्या घटकांविषयी पुढीलप्रमाणे माहिती सांगता येईल.

डिजिटल लायब्ररी : "डिजिटल लायब्ररी, ज्याला ऑनलाइन लायब्ररी, इंटरनेट लायब्ररी, डिजिटल रिपॉझिटरी किंवा डिजिटल संग्रह असेही म्हणतात". "डिजिटल लायब्ररी म्हणजे डिजिटल ऑब्जेक्ट्सचा एक ऑनलाइन डेटाबेस आहे ज्यामध्ये मजकूर, स्थिर प्रतिमा, ऑडिओ, व्हिडिओ, डिजिटल दस्तावेज किंवा इतर डिजिटल मिडिया फॉरमॅट किंवा इंटरनेटद्वारे प्रवेश करण्यायोग्य लायब्ररी होय". ऑब्जेक्ट्समध्ये मुद्रित किंवा छायाचित्रे, तसेच मूळतः उत्पादित डिजिटल सामग्री जसे की वर्ड प्रोसेसर फाईल्स किंवा सोशल मिडिया पोस्ट इत्यादींचा समावेश करण्यात आलेला आहे. डिजिटल लायब्ररी केवळ सामग्री संचयीत करण्याव्यतिरिक्त, संग्रहामध्ये समाविष्ट असलेली सामग्री आयोजित करणे, शोधणे आणि पुर्नःप्राप्त करण्याचे साधन प्रदान करते. डिजिटल लायब्ररी आकार आणि व्याप्तीमध्ये खूप भिन्न असू शकतात आणि व्यक्ती किंवा संस्थानद्वारे त्यांची देखभाल केली जाऊ शकते. डिजिटल सामग्री स्थानिक पातळीवर संग्रहीत केली जाऊ शकते किंवा संगणक नेटवर्कद्वारे दूरस्थपणे प्रवेश केली जाऊ शकते.

डिजिटल लायब्ररीचा इतिहास :- डिजिटल लायब्ररीचा सुरुवातीचा इतिहास चांगल्या प्रकारे दस्तावेजीकरण केलेला नाही, परंतु अनेक प्रमुख विचारवंत या संकल्पनेच्या उदयाशी जोडलेले आहेत. यामध्ये 'पॉल ओटलेट' आणि 'हेन्री ला' फॉन्टेनचे 'मुंडेनियम' यांचा समावेश आहे, १८९५ मध्ये जागतिक शांतता प्रस्थापित करण्याच्या आशेने जगाचे ज्ञान एकत्रित करण्याचा आणि पद्धतशीरपणे कॅटलॉग करण्याचा प्रयत्न सुरू झाला. डिजिटल लायब्ररीचे दर्शन एका शतकानंतर इंटरनेटच्या मोठ्या विस्तारा दरम्यान, वर्ल्ड वाईड वेब वर लाखो लोकांची पुस्तके आणि दस्तऐवजांच्या शोधामुळे मोठ्या प्रमाणावर लक्षात आले आहे. 'व्हॅन्नेश्वर बुश' आणि 'JCR Licklider' हे दोन योगदानकर्ते आहेत ज्यांनी डिजिटल लायब्ररी ही कल्पना तत्कालीन वर्तमान तंत्रज्ञानामध्ये प्रगत केली. बुश यांनी हिरोशिमावर बॉम्ब टाकल्याच्या संशोधनाला पाठिंबा दिला होता. आपत्ती पाहिल्यानंतर बुश यांना तंत्रज्ञानामुळे विनाशाऐवजी विकास कसा होऊ शकतो हे दाखवणारे यंत्र तयार करायचे होते. या यंत्रामध्ये दोन स्क्रीन, स्विच बटणे, आणि की-बोर्डसह एक डेस्क होते. त्यांनी त्याला "मेमेक्स" असे नाव दिले. अशा प्रकारे व्यक्ती जलद गतीने संग्रहित पुस्तके आणि फाईल्स मध्ये प्रवेश करू शकतील हे त्यांनी दाखवून दिले. १९५६ मध्ये, 'फोर्ड'

फाऊंडेशन Licklider' यांना तंत्रज्ञानाद्वारे लायब्ररी कशी सुधारली जाऊ शकते याचे विश्लेषण करण्यासाठी निधी दिला. Licklider यांना संगणक आणि नेटवर्कचा वापर करणारी एक प्रणाली तयार करायची होती. जेणेकरून मानवी ज्ञान, मानवी गरजांसाठी उपलब्ध होईल आणि मशीनच्या उद्देशांसाठी फीडबॅक स्वयंचलित असेल. या प्रणालीमध्ये तीन घटक होते ते म्हणजे ज्ञानाचा कोष, प्रश्न आणि उत्तर. लिक्लाइडरने याला 'प्रोकग्निटिव्ह सिस्टम' म्हटले आहे. डिजिटल लायब्ररीचे प्रारंभिक उदाहरण म्हणजे, एज्युकेशन रिसोर्सेस इन्फॉर्मेशन सेंटर (ERIC), शैक्षणिक उद्धरणे, गोषवारा आणि मजकूर यांचा डेटाबेस जो १९६४ मध्ये तयार करण्यात आला आणि १९६९ मध्ये डायलॉगद्वारे ऑनलाइन उपलब्ध करून देण्यात आला. १९९४ मध्ये, DARPA(Defence Advanced Research Projects Agency) च्या इंटेलिजेंट इंटीग्रेशन ऑफ इन्फॉर्मेशन (I३) प्रोग्राम, NASA (National Aeronautics and Space Administration) आणि स्वतः NSF (National Science Foundation) द्वारे संयुक्तपणे समर्थित \$२४.४ दशलक्ष NSF व्यवस्थापित कार्यक्रमांमुळे डिजिटल लायब्ररी संशोधन समुदायामध्ये व्यापकपणे जगासमोर आल्या. यामध्ये यू.एस.ए. च्या सहा विद्यापीठांमधून यशस्वी संशोधन प्रस्ताव आले. यामध्ये कार्नेगी मेलॉन विद्यापीठ, कॅलिफोर्निया-बर्कले विद्यापीठ, मिशिगन विद्यापीठ, इलिनॉय विद्यापीठ, कॅलिफोर्निया विद्यापीठ-सांता बार्बरा आणि स्टॅनफोर्ड विद्यापीठ यांचा समावेश होता. प्रकल्पातील लेखांनी मे १९९६ मध्ये त्यांच्या अर्ध्या टप्प्यावर प्रगतीचा सारांश दिला. 'सेर्गे ब्रिन' आणि 'लॅरी पेज' यांच्या स्टॅनफोर्ड संशोधनामुळे Google ची स्थापना झाली. आणि यानंतर मोठ्या प्रमाणात ग्रंथालयाचे संगणकीकरण करण्यावर भर देण्यात आला.

डिजिटल लायब्ररीची वैशिष्ट्ये: पुस्तके संग्रहण आणि विविध प्रकारच्या प्रतिमा सहजपणे आणि जलद ॲक्सेस करण्याचे साधन म्हणून डिजिटल लायब्ररीचे फायदे आता व्यावसायिक हितसंबंध आणि सार्वजनिक संस्थांद्वारे व्यापकपणे ओळखले जावू लागले आहेत. या दृष्टीकोनातून डिजिटल लायब्ररीची काही महत्त्वपूर्ण अशी वैशिष्ट्ये आहेत ती आपल्याला पुढीलप्रमाणे सांगता येतील.

१. सॉफ्टवेअरची उपलब्धता :- सामान्यतः डिजिटल लायब्ररीमध्ये वापरण्यासाठी अनेक सॉफ्टवेअर आहेत. संस्थात्मक भांडार सॉफ्टवेअर, जे प्रामुख्याने स्थानिकरित्या उत्पादित दस्तऐवजांचे अंतर्ग्रहण, जतन आणि प्रवेश यावर लक्ष केंद्रित करते, विशेषतः स्थानिक पातळीवर उत्पादित शैक्षणिक आउटपुट, संस्थात्मक भांडार सॉफ्टवेअरमध्ये आढळू

शक्ते. डिजिटल लायब्ररीमध्ये डिझाइन आणि अंमलबजावणी तयार केली जाते. जेणेकरून, संगणक प्रणाली आणि सॉफ्टवेअर माहितीची देवाण-घेवाण करताना त्याचा वापर करू शकतात याला 'सिमेटिक डिजिटल लायब्ररी' असे संबोधले जाते. सिमेटिक लायब्ररीचा वापर सोशल नेटवर्कच्या मोठ्या प्रमाणावर विविध समुदायांसह सामाजिक बांधिलकी निर्माण करण्यासाठी देखील केला जातो.

२. मेटाडेटा :- पारंपारिक लायब्ररीमध्ये, स्वारस्य असलेली कामे शोधण्याची क्षमता ते किती चांगल्या प्रकारे कॅटलॉग केले गेले आहे याच्याशी थेट संबंधित आहे. लायब्ररीच्या विद्यमान होलिंगमधून डिजिटल केलेल्या इलेक्ट्रॉनिक कामांचे कॅटलॉग करणे हे प्रिंटमधून रेकॉर्ड इलेक्ट्रॉनिक स्वरूपात कॉपी करणे किंवा हलवण्याइतके सोपे असू शकते, परंतु जटिल आणि मूलतः डिजिटल असणाऱ्या कामांना जास्त प्रयत्न करावे लागतात. इलेक्ट्रॉनिक प्रकाशनांचे वाढते प्रमाण हाताळण्यासाठी, प्रभावी स्वयंचलित शब्दार्थ वर्गीकरण आणि शोधासाठी नवीन साधने आणि तंत्रज्ञानाची रचना करावी लागेल. पूर्ण-मजकूर शोध काही बाबींसाठी वापरला जाऊ शकतो, परंतु अनेक सामान्य कॅटलॉग शोध आहेत जे पूर्ण मजकूर वापरून केले जाऊ शकत नाहीत, यासह: इतर ग्रंथांचे भाषांतर शोधणे, मजकूर / नियतकालिकाच्या आवृत्त्या / खंडामध्ये फरक करणे, विसंगत वर्णनकर्ता, गहाळ, कमतरता किंवा खराब दर्जाच्या वर्गीकरण पद्धती, टोपणनावाने प्रकाशित झालेल्या मजकुरांना खऱ्या लेखकांशी जोडणे, विडंबनातून नॉन-फिक्शन वेगळे करणे इत्यादी कार्य पूर्ण मजकूर शोध वापरून केली जावू शकत नाहीत.

३. शोध इंटर फेस प्रदान करणे :- बहुतेक डिजिटल लायब्ररी शोध इंटर फेस प्रदान करतात ज्यामुळे संसाधने शोधता येतात. ही संसाधने सामान्यतः खोल वेब संसाधने असतात कारण ते शोध इंजिन क्रॉलर्सद्वारे वारंवार शोधले जाऊ शकत नाहीत. काही डिजिटल लायब्ररी शोध इंजिनांना त्यांची सर्व संसाधने शोधण्याची परवानगी देण्यासाठी विशेष पृष्ठे किंवा साइटमॅप तयार करतात. डिजिटल लायब्ररी त्यांचा मेटाडेटा इतर डिजिटल लायब्ररी आणि Google Scholar, Yahoo! सारख्या शोध इंजिनांना उघड करण्यासाठी मेटाडेटा हार्वेस्टिंग (OAI-PMH) साठी ओपन अर्काइव्ह इनिशिएटिव्ह प्रोटोकॉलचा वापर करतात. आणि Scirus हे खोल वेब संसाधने शोधण्यासाठी OAI-PMH देखील वापरू शकते.

४. डिजिटल संरक्षण:- डिजिटल प्रिझर्वेशनचे उद्दिष्ट हे सुनिश्चित करणे आहे की डिजिटल मीडिया आणि माहिती प्रणाली अद्याप अनिश्चित परंतु भविष्यात अर्थपूर्ण

आहेत. यातील प्रत्येक आवश्यक घटकाचे स्थलांतरित, संरक्षित किंवा अनुकरण करणे आवश्यक आहे. सामान्यतः खालच्या स्तरावरील प्रणाली (उदा. फ्लॉपी डिस्क) अनुकरण केल्या जातात. बिट-स्ट्रीम (डिस्कमध्ये संग्रहित केलेल्या वास्तविक फाईल्स) संरक्षित केल्या जातात आणि ऑपरेटिंग सिस्टम आभासी मशीन म्हणून अनुकरण केल्या जातात. फक्त येथे डिजिटल मीडिया आणि माहिती प्रणालीचा अर्थ आणि सामग्री चांगल्या प्रकारे समजली आहे तेथे स्थलांतर शक्य आहे. गेल्या काही वर्षांत, उच्च गतीने आणि तुलनेने कमी किमतीत पुस्तकांचे डिजिटायझेशन करण्याच्या प्रक्रियेत बरीच सुधारणा झाली आहे, परिणामी आता वर्षाला लाखो पुस्तके डिजिटल करणे शक्य झाले आहे. Google पुस्तक-स्कॅनिंग प्रकल्प डिजीटाइझ पुस्तकांच्या क्षेत्रात पुढे ढकलण्यासाठी डिजिटायझ पुस्तके ऑफर करण्यासाठी लायब्ररीसोबत कार्य करत आहेत.

५. कॉपीराईट आणि परवाना:- डिजिटल लायब्ररींना कॉपीराईट कायद्याने अडथळा आणला आहे कारण, पारंपारिक मुद्रित कृतींच्या विपरीत, डिजिटल कॉपीराईटचे कायदे अजूनही तयार केले जात आहेत. लायब्ररीद्वारे वेबवरील सामग्रीच्या पुनःरुत्थानासाठी हक्क धारकांची परवानगी आवश्यक असू शकते आणि लायब्ररी आणि प्रकाशक यांच्यात स्वारस्याचा संघर्ष आहे जे व्यावसायिक हेतूसाठी त्यांच्या अधिग्रहित सामग्रीच्या ऑनलाईन आवृत्त्या तयार करू इच्छितात. सन २०१० मध्ये, असा अंदाज होता की अस्तित्वात असलेली २३% पुस्तके सन १९२३ पूर्वी तयार झाली होती आणि त्यामुळे ती कॉपीराईटच्या बाहेर होती. या तारखेनंतर छापलेल्यांपैकी, सन २०१० पर्यंत फक्त ५% पुस्तके छापण्यात आली होती. अशा प्रकारे अंदाजे ७२% पुस्तके लोकांसाठी उपलब्ध नव्हती. कॉपीराईट बाबतच्या समस्या कायम आहेत. त्यामुळे डिजिटल लायब्ररींना कॉपीराईट कायद्यातून सूट देण्यात यावी, असे सुचविणारे प्रस्ताव मांडण्यात आले आहेत. जरी हे लोकांसाठी खूप फायदेशीर असले तरी, त्याचा नकारात्मक आर्थिक परिणाम होऊ शकतो आणि लेखक नवीन कार्ये तयार करण्यास कमी प्रवृत्त होऊ शकतात.

६. शिफारस प्रणाली:- अनेक डिजिटल लायब्ररी माहिती ओव्हरलोड कमी करण्यासाठी आणि त्यांच्या वापरकर्त्यांना संबंधित साहित्य शोधण्यात मदत करण्यासाठी शिफारस प्रणाली ऑफर करतात. IEEE Xplore, Europeana, आणि GESIS Sowiport ही शिफारस प्रणाली मुख्यतः सामग्री आधारित फिल्टरिंगवर आधारित कार्य करतात परंतु सहयोगी फिल्टरींग आणि उद्धरण-आधारित शिफारसी यासारख्या इतर पद्धती देखील वापरल्या जातात. सामान्यतः डिजिटल लायब्ररी विद्यमान शोध आणि शिफारस फ्रेमवर्क

जसे की Apache Lucene किंवा Apache Mahout वर आधारित त्यांची स्वतःची शिफारस प्रणाली विकसित आणि देखरेख करतात. तथापि सेवा म्हणून डिजिटल लायब्ररीसाठी शिफारस प्रणाली ऑफर करण्यात माहिर असलेले काही सेवा-प्रदाते आहेत.

डिजिटल लायब्ररीचे महत्त्व :- आजही ग्रामीण भागामध्ये पारंपारिक ग्रंथालयांचा विकासही म्हणावा तसा झालेला आपणास दिसून येत नाही. ग्रंथालयांची झालेली दुरावस्था पाहता अनेक सार्वजनिक ग्रंथालये ही बंद पडण्याच्या मार्गावर असल्याचे दिसून येत आहेत, त्यात डिजिटल ग्रंथालय ही संकल्पना ग्रामीण भागामध्ये अस्तित्वात आणण्यासाठी मोठ्या प्रमाणात प्रयत्न करण्याची गरज असून त्या दृष्टीकोनातून केंद्र व राज्य सरकारने कांही महत्त्वपूर्ण पावले उचलण्याची गरज आहे. नवीन ग्रंथालयाचे स्वरूप हे संगणकीय होत आहे. आंतरजालावरून माहितीचा शोध शक्य होतो. तसेच योग्य ते सदस्यत्व घेऊन त्या-त्या ग्रंथालयाच्या संकेतस्थळावर माहितीचा शोध घेता येतो. आज संपूर्ण जगामध्ये डिजिटल ग्रंथालय ही संकल्पना उदयास आलेली आपणास दिसून येत आहे डिजिटल ग्रंथालयाच्या साह्याने आपल्याला हवा तेंव्हा हवा तो ग्रंथ जगभरातील कोणत्याही ठिकाणी बसून मिळवता येतो. इतकेच नाही तर कुणालाही त्या ग्रंथालयाचे सदस्य म्हणून नोंद करून हव्या त्या पद्धतीची सुविधा उपलब्ध करून दिली जाते. आज माहिती प्रसारणाच्या क्षेत्रामध्ये मोठ्या प्रमाणात बदल झाल्यामुळे त्या दृष्टीने ग्रंथालये ही वेगळ्या पद्धतीने विकसित होत असताना दिसून येत आहेत. ग्रंथालयाच्या संदर्भामध्ये सामाजिक संघटनांनी अथवा सामाजिक संस्थांनी पुढे येऊन तसेच सरकारने योग्य ती जबाबदारी स्वीकारल्यानंतरच ही ग्रंथालय पुढे जाण्यास चालना मिळत आहे. डिजिटल लायब्ररीचा विचार करता भारतामध्ये महत्त्वपूर्ण अशा डिजिटल लायब्ररी म्हणजे National Digital Library of India, Universal Digital Library, Directory of Open Access Books, Internet Archive, British Council Online Library, Delhi University Library System etc. असून यामध्ये वाचकवर्ग आपल्या वेळेनुसार आपल्याला हव्या असलेल्या साहित्याची मागणी करून तो सहजरित्या हस्तगत करू शकतो. त्यामुळे त्याचा वेळही वाचतो, आणि त्याची गरजही भागवली जाते. त्यामुळे डिजिटल ग्रंथालयाचे महत्त्व खूप असून सद्यःस्थितीत डिजिटल लायब्ररीची संख्या वाढविण्याची नितांत गरज आहे त्या दृष्टीकोनातून मोठ्या प्रमाणात प्रयत्न होत असलेले पहावयास मिळत आहेत. महाराष्ट्र राज्याचा विचार करता आजही डिजिटल लायब्ररीचा विकास झालेला पहावयास मिळत नाही. आजही मोठ्या प्रमाणात पारंपारिक ग्रंथालयेच अस्तित्वात असून त्या ग्रंथालयाचे

डिजिटल ग्रंथालयामध्ये रूपांतर करण्याची आवश्यकता आहे जेणेकरून वाचकवर्गाला त्यांना आवश्यक असलेले साहित्य हव्या त्या वेळी सहज उपलब्ध होऊ शकेल. कारण ग्रंथालयांचा मुख्य उद्देशच वाचकांच्या वाचनविषयक गरजा पूर्ण करणे हा असतो आणि या डिजिटल ग्रंथालयांचा विकास करण्यासाठी समाजातील विविध घटकांनी प्रयत्न करणे आवश्यक आहे कारण डिजिटल ग्रंथालय उभारण्यासाठी सुरुवातीला मोठ्या प्रमाणात खर्च येतो, त्यासाठी विद्यार्थी, संशोधक किंवा सामान्य वाचक यांनी पुढाकार घेऊन डिजिटल ग्रंथालयाची शिफारस राज्य सरकारकडे करणे आवश्यक आहे. आज महाराष्ट्रामध्ये निर्मल डिजिटल लायब्ररी - ईस्ट महाराष्ट्र, डिजिटल लायब्ररी - घनसांगवी, जागेश्वरी मराठी लायब्ररी- मुंबई, जयकर लायब्ररी - पुणे, SD डिजिटल लायब्ररी - औरंगाबाद, महाराष्ट्र राज्य डिजिटल लायब्ररी - मुंबई, अक्षयधन डिजिटल ग्रंथालय आणि अभ्यास केंद्र - बिजवाडी इत्यादी. अशा अनेक डिजिटल लायब्ररी असून त्याठिकाणी लायब्ररीचा विकास झालेला पहावयास मिळत आहे. परंतु आज ही अनेक ठिकाणी अशी आहेत जेथे डिजिटल ग्रंथालयांची उभारणी करणे आवश्यक आहे. जेणेकरून वाचक वर्गाला त्यांच्या अध्ययनासाठी आवश्यक ते साहित्य सहज उपलब्ध होईल. डिजिटल ग्रंथालयांचा विकास करण्यासाठी विविध स्तरावर प्रयत्न होणे आवश्यक आहे.

डिजिटल लायब्ररीचे फायदे :- डिजिटल लायब्ररी ही पारंपारिक लायब्ररीच्या तुलनेत एक पाऊल पुढे असून डिजिटल लायब्ररीमध्ये अधिक माहिती साठविण्याची क्षमता असते, त्यामुळे माहितीच्या संबंधित बरेच फायदे हे आता व्यावसायिक हितसंबंध आणि सार्वजनिक संस्थांद्वारे व्यापकपणे ओळखले जाऊ लागले आहेत. डिजिटल लायब्ररीचा एक महत्त्वाचा फायदा म्हणजे वापरकर्त्यासाठी ही लायब्ररी सुलभ आहे. डिजिटल लायब्ररीचे विविध फायदे आपल्याला पुढीलप्रमाणे सांगता येतील.

१. कोणतीही भौतिक सीमा नाही :- डिजिटल लायब्ररीच्या उपभोक्त्याला लायब्ररीमध्ये प्रत्यक्ष जाण्याची गरज नाही; इंटरनेट कनेक्शन उपलब्ध असल्यानंतर जगभरातील कुठलीही माहिती कोणत्याही ठिकाणावरून अनेक उपभोक्ते समान माहितीमध्ये प्रवेश मिळवू शकतात.

२. चोवीस तास उपलब्धता :- डिजिटल लायब्ररीमध्ये कधीही वाचकवर्ग आपल्या वेळेनुसार माहिती मिळवू शकतो, त्याला काळाचे किंवा वेळेचे कांहीच बंधन नसते. ही सेवा चोवीस तास उपलब्ध असते.

३. एकाधिक प्रवेश :- अनेक वापरकर्त्यांद्वारे समान संसाधने एकाच वेळी वापरली जाऊ

शकतात ज्याला एकाधिक प्रवेश असे म्हणतात. परंतु, कॉपीराईट केलेल्या सामग्रीसाठी हा प्रवेश असू शकत नाही. त्याला कांही मर्यादा आहेत.

४. माहिती पुनर्प्राप्ती :- डिजिटल लायब्ररी अधिक संरचित पद्धतीने अधिक समृद्ध सामग्री वापरण्याचा अधिकार प्रदान करते म्हणजेच तुम्ही एका विशिष्ट कॅटलॉगमधून दुसऱ्या विशिष्ट अध्यायात सहजपणे माहिती स्थलांतरित करू शकता. डिजिटल लायब्ररी वापरकर्ता-अनुकूल इंटरफेस प्रदान करू शकतात.

५. जतन आणि संवर्धन :- डिजिटायझेशन हा भौतिक संग्रहासाठी दीर्घकालीन संरक्षण उपाय नाही, परंतु पुनरावृत्तीच्या वापरामुळे अधोगती होऊ शकतील अशा सामग्रीसाठी प्रवेश प्रती प्रदान करण्यात यशस्वी होतो.

६. जागा:- पारंपारिक लायब्ररीची स्टोरेज क्षमता मर्यादित स्वरूपात असून, डिजिटल लायब्ररीमध्ये अधिक माहिती साठविण्याची क्षमता असते, त्यामुळे खूप कमी भौतिक जागा आवश्यक असते आणि मीडिया स्टोरेज तंत्रज्ञान पूर्वीपेक्षा अधिक परवडणारे आहे.

७. मूल्य :- डिजिटल लायब्ररीचा देखभाल खर्च पारंपारिक लायब्ररीपेक्षा स्वस्त आहे. वस्तूंची काही वैशिष्ट्ये, प्रामुख्याने प्रतिमांची गुणवत्ता सुधारली जाऊ शकते.

डिजिटल लायब्ररीचे तोटे :- डिजिटल लायब्ररीचे जसे फायदे आहेत तसेच त्याचे काही तोटेही आहेत ते आपल्याला पुढीलप्रमाणे सांगता येतील:

१. कॉपीराइट कायद्याचे उल्लंघन:- डिजिटायझेशन कॉपीराइट कायद्याचे उल्लंघन करते कारण एखाद्या लेखकाची विचार सामग्री त्याच्या पोचपावती शिवाय इतरांद्वारे मुक्तपणे हस्तांतरित केली जाऊ शकते.

२. प्रारंभिक खर्च :- प्रारंभिक खर्च उच्च प्रतीचा असून फंक्शनल डिजिटल कलेक्शनसाठी आवश्यक असलेले टेराबाइट्स स्टोरेज, सर्व्हर आणि देखभाल करण्यासाठी प्रचंड खर्च करावा लागतो,

३. उच्च बँडविड्थ नेटवर्क:- डिजिटल लायब्ररीला मल्टीमीडिया संसाधनांच्या हस्तांतरणासाठी उच्च बँडविड्थ नेटवर्कची आवश्यकता असते.

४. प्रशिक्षण आणि विकास :- डिजिटल लायब्ररी चालविण्यासाठी योग्य अशा प्रशिक्षणाची आवश्यकता असते, प्रशिक्षण नसलेली व्यक्ती डिजिटल लायब्ररी हाताळू शकत नाही पर्यायाने लायब्ररीचा विकास होत नाही, त्यामुळे डिजिटल लायब्ररीचे प्रशिक्षण देणे गरजेचे आहे.

५. मेटाडेटा गुणवत्ता :- डिजिटल माहितीच्या मोठ्या प्रमाणासह, विशिष्ट कार्यासाठी

योग्य सामग्री शोधणे अधिक कठीण होत आहे, त्यामुळे मेटाडेटाच्या गुणवत्तेमध्ये तडजोड होत असताना दिसून येत आहे.

६. वातावरण:- डिजिटल लायब्ररी पारंपारिक लायब्ररीच्या वातावरणाचे पुनरूत्पादन करू शकत नाही.

भविष्यकालीन उपाययोजना:- डिजिटल लायब्ररीचा विकास करण्यासाठी अनेक प्रकल्प सुरू करण्यात आले आहेत. गुगल, द मिलियन बुक प्रोजेक्ट, आणि इंटरनेट आर्काइव्ह येथे मोठ्या प्रमाणावर डिजिटायझेशन प्रकल्प सुरू आहेत ज्याच्या माध्यमातून पुस्तक हाताळणी आणि प्रेझेंटेशन तंत्रज्ञान जसे की ऑप्टिकल कॅरेक्टर ओळख आणि पर्यायी डिपॉझिटरीज आणि बिझनेस मॉडेल्सच्या विकासामध्ये सतत सुधारणा करून, डिजिटल लायब्ररीची लोकप्रियता वेगाने वाढत आहे. डिजिटल लायब्ररीच्या माध्यमातून लोकांना विविध ग्रंथ किंवा ग्रंथेतर साहित्य हे त्यांच्या वेळेनुसार उपलब्ध होत आहेत. ज्याप्रमाणे, लायब्ररींनी ऑडिओ आणि व्हिडिओ कलेक्शनमध्ये प्रवेश केला आहे त्याचप्रमाणे इंटरनेट आणि आर्काइव्हसारख्या डिजिटल लायब्ररीमध्येही आहे. Google Books प्रकल्पाला अलीकडेच त्यांच्या पुस्तक-स्कॅनिंग प्रकल्पासह पुढे जाण्यावर न्यायालयीन विजय मिळाला जो लेखक संघाने थांबवला होता, ही एक डिजिटल लायब्ररीच्या मार्गावरील मोठी क्रांतीच असून यामुळे संगणकीकृत माहितीची सवय असलेल्या संरक्षकांपर्यंत चांगल्या प्रकारे पोहोचण्यासाठी लायब्ररींना Google सोबत काम करण्याचा मार्ग मोकळा करण्यास मदत झाली आहे.

डिजिटल लायब्ररीच्या संदर्भात अनेक तज्ज्ञांनी आपली मते मांडली आहेत. त्यामध्ये, नॉन-प्रॉफिट कॉर्पोरेशन फॉर नॅशनल रिसर्च इनिशिएटिव्हज (CNRI) मधील माहिती व्यवस्थापन तंत्रज्ञान संचालक लॅरी लॅनोम यांच्या मते, "डिजिटल लायब्ररीशी संबंधित सर्व समस्या संग्रहणात गुंडाळल्या जातात". ते पुढे असेही म्हणतात की, "जर १०० वर्षांनंतरही लोक तुमचा लेख वाचू शकतील, तर आम्ही समस्या सोडवू शकू". वेबस्टर क्रॉनिकलचे लेखक डॅनियल अकस्ट यांनी असे सुचविले आहे की, "ग्रंथालयाचे आणि माहितीचे भविष्य डिजिटल आहे". पीटर लिमन आणि हॅल व्हेरिएंट, कॅलिफोर्निया विद्यापीठ, बर्कले येथील माहितीशास्त्रज्ञ यांचा असा अंदाज आहे की, "जगातील प्रिंट, फिल्म, ऑप्टिकल आणि चुंबकिय सामग्रीच्या एकूण वार्षिक उत्पादनासाठी अंदाजे १.५ अब्ज गीगाबाइट्स स्टोरेजची आवश्यकता असेल". म्हणून त्यांचा असा विश्वास आहे की लवकरच सरासरी व्यक्तीला अक्षरशः सर्व रेकॉर्ड केलेल्या माहितीमध्ये प्रवेश करणे

तांत्रिकदृष्ट्या शक्य होईल.

डिजिटल संग्रहण हे एक विकसित होणारे माध्यम आहे आणि ते विविध परिस्थितीत विकसित होतात. मोठ्या प्रमाणावरील भांडाराच्या बरोबरीने, इतर डिजिटल संग्रहण प्रकल्प देखील विविध संस्थात्मक स्तरांवर संशोधन आणि संशोधन संप्रेषणाच्या गरजांना प्रतिसाद देण्यासाठी विकसित झाले आहेत. उदाहरणार्थ, जगभरावर संकट आले होते ते म्हणजे कोविड-१९ या जागतीक महामारीचे. या महामारीच्या काळात, ग्रंथालये आणि उच्च शिक्षण संस्थांनी महामारीच्या काळात जीवनाचे दस्तऐवजीकरण करण्यासाठी डिजिटल संग्रहण सुरू केले आहेत, अशा प्रकारे त्या काळातील सामूहिक आठवणींचा डिजिटल, सांस्कृतिक रेकॉर्ड तयार केला आहे. संशोधकांनी विशेष संशोधन डेटाबेस तयार करण्यासाठी डिजिटल संग्रहणाचा देखील वापर केला आहे. हे डेटाबेस आंतरराष्ट्रीय आणि अंतःविषय स्तरावर वापरण्यासाठी डिजिटल रेकॉर्ड संकलित करतात. कोविड कॉर्पस, ऑक्टोबर २०२० मध्ये लॉंच केले गेले, हे अशा डेटाबेसचे एक उदाहरण आहे, जे महामारीच्या प्रकाशात वैज्ञानिक संवादाच्या गरजांना प्रतिसाद म्हणून तयार केले गेले आहे. अशी अनेक महत्त्वपूर्ण कार्ये भविष्याच्या दृष्टीकोनातून होत असताना दिसून येत आहेत.

सारांश :- वरील विवेचनावरून असे दिसून येते की, डिजिटल लायब्ररी ही काळाची गरज असून याच्या माध्यमातून ग्रंथालयांचा विकास साधला जाऊन वाचक वर्गाला डिजिटल लायब्ररीच्या माध्यमातून हवा तो ग्रंथ उपलब्ध करून देऊन ग्रंथालयाकडे पाहण्याचा सकारात्मक दृष्टिकोन निर्माण करणे गरजेचे असून त्याअनुषंगाने डिजिटल लायब्ररीचा विकास करून वाचक वर्गामध्ये निर्माण झालेली ग्रंथालयांप्रतीची उदासीन भावना दूर करणे महत्वाचे आहे. आज जगभरामध्ये डिजिटल लायब्ररीचा विकास करण्यासाठी अनेक महत्त्वपूर्ण प्रकल्प हाती घेतले जात आहेत.

संदर्भ सूची :-

१. ग्रंथालय संगणकीकरण आणि आधुनिकीकरण, लेखक - डॉ.द.ना.फडके, युनिव्हर्सल प्रकाशन, पुणे.

२. <http://en.m.wikipedia.org>

३. <http://maharashtratimes.com>

४. <http://dol.maharashtra.gov.in>



महाविद्यालयीन शिक्षणात डिजीटल ग्रंथालयाची भूमीका व ग्रंथपालाचे बदलते स्वरूप

डॉ.गोविंद सुर्यभान घोगरे

ग्रंथपाल,

लोकमान्य कला महाविद्यालय, सोनखेड, ता.लोहा, जि.नांदेड

प्रा.विलास गोपीनाथराव किर्दत

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वसुंधरा महाविद्यालय, घाटनांदूर, ता.अंबाजोगाई, जि.बीड

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सार :

वर्तमान युग हे स्पर्धेचे युग आहे. मानवाला प्रत्येक गोष्ट ही तात्काळ हवी आहे. याला शिक्षणक्षेत्र देखील अपवाद नाही. यामुळेच शिक्षण व्यवस्थेमध्ये अनेक नवीन बदल होत असल्याचे दिसून येत आहे. यामुळेच आज आधुनिक तंत्रज्ञानाच्या युगात अनेक नवीन शैक्षणिक पद्धती, साधने, संकल्पना उदयास येत आहेत. यातून शिक्षणाचे स्वरूप बदलत आहे. या बदलत्या शिक्षणाला अनुसरून ग्रंथालय देखील डिजीटल होत आहेत, त्यामुळे ग्रंथपालाचे स्वरूप देखील बदलत असल्याचे समोर येत आहे.

प्रस्तावना :

शिक्षणामुळेच माणसाचा सर्वांगीण विकास होतो. शिक्षणामुळेच माणूस हा इ

तानी व बुद्धिमान बनत असतो.

यासाठी मानवाला शिक्षणाची गरज असते. अन, वस्त्र, निवारा या मुलभूत गरजा नंतर मानवाची शिक्षण ही देखील मुलभूत गरज आहे असे म्हटले तरी वावगे होणार नाही. हिच शिक्षणाची गरज ओळखून शिक्षण देण्यासाठी समाजामध्ये शैक्षणिक संस्था निर्माण होऊ लागल्या. महाविद्यालय ही देखील ज्ञानदानाचे कार्य करणारी प्रमुख संस्था आहेत. महाविद्यालयात प्रामुख्याने तीन कार्य पार पाडले जाते. यामध्ये १. अध्ययन. २. अध्यापन व ३. संशोधन हे आहेत. महाविद्यालयात अध्ययनाद्वारेच विद्यार्थ्यांना ज्ञान देऊन त्यांच्या अंगी असणारे सुप्त गुण व त्यांच्या व्यक्तिमत्त्वाचा विकास केला जातो. तर अध्यापन ही प्राध्यापकांच्या संदर्भातील संकल्पना असून अध्यापनातून प्राध्यापक हे वर्गामध्ये विद्यार्थ्यांना विषयाला अनुसरून मार्गदर्शन करतात. तसेच संशोधन हे प्राध्यापक व विद्यार्थी दोनही केंद्रीत संकल्पना आहे. परंतु या तीनही संकल्पना ही या ग्रंथालयाशी निगडित आहेत. कारण विद्यार्थ्यांना अध्ययन करायचे असेल तर त्यांना वेगवेगळे पुस्तके घ्यावे लागतात, ते ग्रंथालयातूनच मिळतात. तसेच प्राध्यापकांना अध्यापनासाठी क्रमिक पुस्तके, संदर्भ ग्रंथ यांची आवश्यकता असते, याची पूर्तता देखील ग्रंथालयाद्वारेच केली जाते. तर संशोधनासाठी मोठ्या प्रमाणात वेगवेगळे क्रमिक पुस्तके, संदर्भ ग्रंथ, जर्नल्स, मासिके, पाक्षिके, साप्ताहिके, वर्तमानपत्रे यांची आवश्यकता असते. हे संशोधकाला सर्वच खरेदी करणे शक्य नसते. त्यामुळे हे मिळवण्याचा सर्वात मोठा स्रोत म्हणजे ग्रंथालय हे आहे. तेव्हा विद्यार्थ्यांना विषयाचे

संपूर्ण ज्ञान मिळावे, प्राध्यापकांना अध्यापनासाठी लागणारे साहित्य मिळावे, संशोधकांना संशोधनासाठी लागणारे संशोधन साहित्य हे ग्रंथालय उपलब्ध करून देत असते. त्यामुळे महाविद्यालयीन शिक्षण आणि ज्ञान प्राप्तीमध्ये ग्रंथालय हा महत्वाचा घटक आहे.

उद्दिष्टे :

१. डिजीटल ग्रंथालयाची भूमिका समजून घेणे.
२. डिजीटल ग्रंथालयातील ग्रंथपालाचे बदलते स्वरूपाचा अभ्यास करणे.

गृहितके :

१. महाविद्यालयात ग्रंथालय हे डिजीटल होत आहेत.
२. डिजीटल ग्रंथालयातील ग्रंथपालाच्या कामाचे स्वरूप बदलत आहे.

माहिती स्रोत :

सदरील शोध निबंधाच्या अभ्यासासाठी विद्यार्थी माहिती स्रोताचा वापर करण्यात

आला आहे. यामध्ये पुस्तके, संदर्भ ग्रंथ, जर्नल्स, मासिके, साप्ताहिके, वर्तमानपत्रे इत्यादींचा वापर करण्यात आला आहे.

स्पष्टीकरण :

ग्रंथालयाला महाविद्यालयाचा आत्मा असे म्हटले जाते. कारण महाविद्यालयीन शिक्षणात अध्यापक वर्गामध्ये विद्यार्थ्यांना विषयाला अनुसरून मार्गदर्शन करतात. परंतु वर्गातील अध्यापन विद्यार्थ्यांना विषय ज्ञान पूर्णतः आत्मसात करण्यास मर्यादित ठरते. तेव्हा विद्यार्थ्यांना विषयाचे संपूर्ण ज्ञान प्राप्तीसाठी ग्रंथालय हे महत्वाचे ठरते. तसेच ग्रंथालय हे प्राध्यापक व संशोधकांना देखील तेवकच महत्त्वपूर्ण आहे. साधारणपणे ग्रंथालय म्हणजे "ग्रंथालय म्हणजे अशी वास्तु की ज्या ठिकाणी वाचन साहित्य संग्रह यामध्ये ग्रंथ व ग्रंथत्तर साहित्य आणि दृक श्राव्य साधने वाचकांच्या जास्तीत जास्त उपयोगासाठी तंत्रशुद्ध पद्धतीने मांडलेली अथवा ठेवलेली असतात." म्हणजेच ग्रंथालय हे वाचन साहित्याचे संकलन करून त्याची देखभाल करणारी संस्था होय.

सद्यस्थितीत मोठ्या प्रमाणावर उपलब्ध होत असलेले क्रमिक पुस्तके, संदर्भ ग्रंथ, वाचनसाहित्य व विद्यार्थी, प्राध्यापक, संशोधकांच्या वाढत्या गरजा यांचा मेळ घालणे ग्रंथालयांना ज्या वेळी अवघड वाटू लागले त्यावेळी ग्रंथालयात हळूहळू तंत्रज्ञानाचा शिरकाव झाला. संगणकात साठवून ठेवलेल्या माहितीवर वेगवेगळे संस्कार व बदल करणे सोपे व कमी त्रासाचे असल्यामुळे अनेक ग्रंथालयांनी संगणकाचा वापर करणे सुरू केले. यातूनच पुढे पारंपारिक ग्रंथालयांचे रूपांतर हळूहळू इलेक्ट्रॉनिक ग्रंथालय, डिजिटल ग्रंथालय, व्हर्चुअल ग्रंथालय यांमध्ये होऊ लागले. या तीनही ग्रंथालयातील समान स्वरूप म्हणजे येथील वाचनसाहित्य इलेक्ट्रॉनिक स्वरूपात साठवून ठेवलेले असते. सद्यस्थितीत महाविद्यालयीन शिक्षणात डिजिटल ग्रंथालय असणे ही काळाची गरज झालेली आहे.

डिजिटल ग्रंथालयाची व्याख्या :

१. "पारंपरिक ग्रंथालये करीत असलेली ग्रंथ व तत्सम माहिती साधनांचे संग्रहण, तालिकीकरण, माहितीचा शोध व वितरण इत्यादी कार्ये डिजिटल गणनप्रक्रिया, डिजिटल माहिती संग्रहण, संग्रहण तंत्रज्ञान, आज्ञावली (सॉफ्टवेअर) यांच्या साहाय्याने करणारी यंत्रणा म्हणजे डिजिटल ग्रंथालय होय."

२. "मल्टिमिडिया डिजिटल स्वरूपातील माहितीच्या जगभर वेगाने विस्तारत असलेल्या जाळ्यातील माहिती प्रत्यक्ष व अप्रत्यक्ष शोधण्याची सुविधा पुरविणाऱ्या संरचनेला डिजिटल ग्रंथालय म्हणतात."

वरील दोनही व्याख्यांचा एकत्रित विचार केला असता असे दिसून येते की, पहिल्या व्याख्येमध्ये पारंपरिक ग्रंथालयांनी ज्या सेवा, सुविधा पुरविल्या त्यांचाच विकास व वितस्तार डिजिटल ग्रंथालयांमध्ये करण्यात आलेला आहे.

अर्थात डिजिटल ग्रंथालयाच्या व्याख्यावरून आपल्या असे लक्षात येते की पारंपरिक ग्रंथालयांच्या काही सेवांचा विकास व विस्तार डिजिटल ग्रंथालयामध्ये केलेला आहे.

महाविद्यालयीन शिक्षणात डिजिटल ग्रंथालयाची उद्दिष्टे :

१) महाविद्यालयातील विद्यार्थी, प्राध्यापक व संशोधकांना जगाच्या वाठीवरील कोठेही उपलब्ध असलेली डिजिटल माहिती उपलब्ध करून देणे.

२) आपल्या विषयाशी संबंधीत इतर डिजिटल वाचन साहित्याची ओळख करून देणे.

३) विद्यार्थी, प्राध्यापक व संशोधकांना गरजेनुसार वाचन साहित्याची पूर्तता करून देणे.

४) प्राध्यापक व संशोधकांना एकाच छताखाली जगभरातील अनेक क्रमिक पुस्तके, संदर्भ ग्रंथ, जर्नल्स, संशोधन प्रबंध, संशोधन लेख, मासिके, साप्ताहिके, वर्तमानपत्रे इत्यादी जगभरातील प्रसिद्ध होणारी आधुनिक वाचन साहित्य उपलब्ध करून देणे.

वरीलप्रमाणे नमुद करण्यात आलेल्या डिजिटल ग्रंथालयाची उद्दिष्टांची पूर्तता करण्यामध्ये महाविद्यालयीन ग्रंथालये महत्त्वाची भूमिका बजावतात.

डिजिटल ग्रंथालयातील सेवा सुविधा :

डिजिटल ग्रंथालयामध्ये पारंपरिक सेवा सुविधा बरोबर आधुनिक सेवा सुविधा ही पुरवल्या जातात. त्या खालील प्रमाणे सांगता येतील.

१. ईनबुक्स :

ईनबुक्स म्हणजे ईलेक्ट्रॉनिक्स पुस्तक. ईनबुक्स वाचण्यासाठी कॉम्प्युटर, लॅपटॉप व स्मार्ट फोन यांचा वापर करता येतो. ही पुस्तके ऑनलाईन विद्यार्थी, प्राध्यापक व संशोधकांना केव्हाही कोठेही वाचता येतात. ईनबुक्स ही वेगवेगळ्या ॲपवर उपलब्ध आहेत. अशा ॲपवर ऑनलाईन पद्धतीने किंवा डाऊनलोड करून वाचले जाऊ शकतात.

२. ऑडिओ बुक्स :

डिजिटल ग्रंथालयात छापील पुस्तकाबरोबरच आता ऑडिओ बुक्स ही उपलब्ध आहेत. ही पुस्तके ईनबुक्स प्रमाणेच विद्यार्थी, प्राध्यापक व संशोधकांच्या पसंतीस अधिक

उत्तरत आहेत. कारण ही पुस्तके वाचण्यासाठी कॉम्प्युटर, लॅपटॉप, मोबाईल समोर धरण्याची गरज नसते. तर ही पुस्तके आपण कोणतेही काम करताना कानामध्ये हेडफोन किंवा साऊंडच्या सहायाने सहजतेने ऐकू शकतो. तसेच ही पुस्तके मोबाईलवर वेगवेगळ्या ऑडिओ बुक्सद्वारे उपलब्ध झालेली आहेत.

३. ईनर्नर्नल्स :

ईनर्नर्नल्स म्हणजे संगणकाच्या माध्यमातून लिहीलेले व प्रकाशित झालेले व जे संगणकाच्या मदतीतून वाचले जाते तसेच संगणकाद्वारे ज्याचे अंक प्रकाशित होतात असे जर्नल्स होय. आज जगभरात जर्नल्सचे प्रकाशन हे ग्रंथ निर्मितीच्या तुलनेत मोठ्या प्रमाणात होत आहे. अशा ईनर्नर्नल्सच्या प्रकाशनाला कमी खर्च येतो तसेच कमी वेळेत मे वाचकापर्यंत पोहोचणे सोयीचे होते. ईनर्नर्नल्सच्या प्रकाशकांचा व वाचकांचा वेळ व पैसा बचत केला आहे. अशी जर्नल्स

ही काही विनाशुल्क वाचता येतात तर काही सदस्यत्व घेवून वाचता येतात.

४. ईननयुज पेपर :

महाविद्यालयीन ग्रंथालयात विद्यार्थी संख्या मोठ्या प्रमाणात असते. तसेच प्राध्यापक व संशोधकांना कमी वेळेत जास्तीत जास्त वर्तमानपत्राची मागणी करतात. अशा वेळी छापील वर्तमानपत्रांची पूर्तता करणे ग्रंथपालाला शक्य होत नाही. याला पर्याय डिजिटल ग्रंथालयात ईननयुज पेपर हा आहे. आज सद्यस्थितीत मोठ्या प्रमाणात ईननयुज पेपर निघत आहेत. ही वर्तमानपत्र ऑनलाईन असल्यामुळे ग्रंथालयातील अनेक सदस्यांना एकाच वेळी अनेक वर्तमानपत्र वाचता येऊ शकतात. यासाठी शिक्षक, विद्यार्थी व संशोधकांना ग्रंथालयात जाण्याची आवश्यकता नाही. या ऑनलाईन वर्तमानपत्रांमुळे प्रस्थापित वर्तमानपत्रांना मुद्रण व कागदासाठी लागणारा खर्च देखील कमी झालेला आहे.

५. N-List :

N-List म्हणजे National Library & Information Service Information for Scholarly Content. विद्यापीठ अनुदान आयोगाने N-List हा उपक्रम महाविद्यालयीन ग्रंथालयासाठी उपलब्ध करून दिला आहे.

विद्यार्थी, संशोधक व प्राध्यापक हे N-List च्या माध्यमातून Infonet व इंटरनेट या दोन कनसोटीएम याद्वारे उपलब्ध काही E-Resources full Text स्वरूपात प्राप्त केला जाऊ शकतो. यामध्ये दहा प्रकाशकांची २२०० पेक्षा जास्त E-journals आणि

२९८ प्रकाशकांची ५१७४६ ईनबुक्स व भारतीय प्रकाशकांच्या नियतकालिकातील लेख उपलब्ध आहेत. N-List विद्यापीठ ग्रंथालयासाठी व संशोधक विद्यार्थ्यांना संशोधनासाठी उपलब्ध होत होती. मात्र ती आता महाविद्यालयातील ग्रंथालयात ही उपलब्ध झाली आहे.

डिजिटल ग्रंथालयातील इतर आधुनिक वाचन साहित्य :

महाविद्यालयातील डिजिटल ग्रंथालयातील इतर वाचन साहित्यामध्ये फेसबुक, व्हॉट्सएप, ब्लॉग, ट्विटर, ई-नियतकालिके, ई-प्रबंध इत्यादीचा समावेश होतो. महाविद्यालयातील ग्रंथालय डिजिटल असतील तर वरील वाचन साहित्य विद्यार्थी, प्राध्यापक व संशोधकांना हवी ती पुस्तके, संदर्भ ग्रंथ, जर्नल्स, मासिके, साप्ताहिके, वर्तमानपत्रे इत्यादी कॉम्प्युटर, लॅपटॉप, मोबाईलमध्ये डाऊनलोड करून केव्हाही कोठेही कधीही सहज वाचता येतात. यामुळे महाविद्यालयीन ग्रंथालयात डिजिटल ग्रंथालयाची भूमिका महत्त्वपूर्ण आहे.

महाविद्यालयीन डिजिटल ग्रंथालयातील ग्रंथपालाचे बदलते स्वरूप :

महाविद्यालयीन ग्रंथालयात डिजिटल ग्रंथालयाबरोबर ग्रंथालयातील ग्रंथपालाच्या कामाचे स्वरूप देखील बदलत असल्याचे दिसून येत आहे. पूर्वीप्रमाणे ग्रंथपालाकडे छपील पुस्तकाची देव-धेव इतकेच काम न राहता कामाच्या स्वरूपात बदल होत आहे तो बदल थोडक्यात खालील प्रमाणे सांगता येईल.

१. ग्रंथपाल शिक्षक :

ग्रंथपाल यांना महाराष्ट्रात कायद्यान्वये शिक्षक मानले जाते. आज सद्यस्थितीत महाविद्यालयीन डिजिटल ग्रंथालयात ग्रंथपालाला शिक्षकाची भूमिका घ्यावी लागत आहे. कारण महाविद्यालयातील विद्यार्थी, प्राध्यापक व संशोधकांना ई-संसाधने कशी हाताळावीत यासाठी प्रत्यक्ष त्यांना मार्गदर्शन करणे आवश्यक असते. कारण ग्रंथपालाच्या मार्गदर्शनाशिवाय आपल्या विषयाशी संबंधित व आपणाला आवश्यक असणा-या घटकाची माहिती शोधने शक्य होत नाही. यासाठी ग्रंथपालाने वेळोवेळी विद्यार्थ्यांना डिजिटल ग्रंथालयातील ईनबुक्स, ईनजर्नल्स, ईननयुज पेपर यांच्या वेबपेजवर कसे जावे, त्यांचे वाचन कसे करावे, आवश्यक असणारी माहिती डाऊनलोड कशी करावी इत्यादी घटकाचे वेळोवेळी मार्गदर्शन करणे आवश्यक आहे. यावरून असे म्हणता येईल की, डिजिटल ग्रंथालयात ग्रंथपालाची शिक्षक म्हणून भूमिका पार पाडणे आवश्यक आहे.

२. माहिती प्रसारक :

महाविद्यालयीन डिजिटल ग्रंथालयात ग्रंथपालाला माहिती प्रसारकाची भूमिका

पार पाडावी लागत आहे. कारण आज माहितीचा विस्फोट झालेला आहे. त्यामुळे विद्यार्थी, प्राध्यापक संशोधकांना आपल्या विषयाशी संबंधीत नवीन कोणती माहिती प्रसारीत झाली आहे, याची माहिती ग्रंथपाल यांनी ग्रंथालयात नोटीस बोर्डावर लावणे आवश्यक आहे.

तसेच मोबाईलवरील ट्विटर, ब्लॉग, हॉट्सअप याद्वारे प्रसारीत होणारी माहिती विद्यार्थी, प्राध्यापक, संशोधक यांच्यापर्यंत पोहचवणे आवश्यक आहे. उदा. हॉट्सअपवर दैनिक वर्तमानपत्रे प्रसारीत करणे, वेगवेगळ्या ईनर्जर्नल्सच्या पीडीएफ पाठवणे, प्रासंगिक महापुरुषांच्या, सन उत्सवाच्या लिंक पाठवणे इत्यादी.

सारांश :

विसाव्या शतकात ग्रंथालयाचे स्वरूप बदलत गेले. ग्रंथालयाकडून विद्यार्थी, प्राध्यापक व संशोधकांच्या अपेक्षा वात गेल्या महाविद्यालयीन ग्रंथालयानेही त्यांची पूर्तता करण्याकडे लक्ष केंद्रीत केले. यातूनच डिजिटल ग्रंथालय अस्थित्वात येऊ लागले. डिजिटल ग्रंथालय असणे ही काळाची गरज देखील आहे. कारण आज माहितीचा स्फोट झालेला आहे. व वाचक हा छापील पुस्तकापेक्षा डेटाबेसची माहिती मोठ्या प्रमाणावर मागवत आहे. त्यामुळे ग्रंथालयाची संकल्पना बदलली व माहितीची देवाण घेवान करण्याची पध्दत देखील बदलली आहे. यामुळे या डिजिटल ग्रंथालयामध्ये काम करणा-या ग्रंथपालाच्या कामाचे स्वरूप देखील बदललेले दिसून येत आहे.

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QR कोड और डिजिटल शिक्षण

डॉ. नितीन कुंभार

सहायक प्राध्यापक हिंदी विभाग,
कला, वाणिज्य एवं विज्ञान महाविद्यालय,
किल्ले - धारुर जि. बीड महाराष्ट्र

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प्रस्तावना

आजकल हम सभी ऑनलाइन पेमेंट करने लगे हैं। अधिकतर जब भी ऑनलाइन पेमेंट की जाती है तो आपको क्यूआर कोड का नाम सुनाई देता है। जब भी हम कोई खरीदारी करते हैं या फिर किसी को कोई पैसा ट्रांसफर करते हैं, तो आपको क्यूआर कोड को स्कैन करना होता है। इनके जरिए पेमेंट करना बेहद आसान हो जाता है। सिर्फ पेमेंट के लिए ही नहीं, बल्कि किसी पैकेट पर भी क्यूआर कोड देखने को मिल जाता है जो बेहद ही जरूरी होता है। लेकिन आपको यह पता है कि आखिर क्यूआर कोड होता क्या है और ये कैसे काम करता है। चलिए जानते हैं क्यूआर कोड के बारे में सब कुछ।

QR Code का इतिहास

क्यूआर कोड प्रणाली का आविष्कार १९९४ में जापानी कंपनी डेन्सो वेव के मासाहिरो हारा द्वारा किया गया था। प्रारंभिक डिजाइन गो बोर्ड पर काले और सफेद टुकड़ों से प्रभावित था। इसका उद्देश्य निर्माण के दौरान वाहनों को ट्रैक करना था; इसे हाई-स्पीड कंपोनेंट स्कैनिंग की अनुमति देने के लिए डिज़ाइन किया गया था। क्यूआर

कोड का उपयोग अब बहुत व्यापक संदर्भ में किया जाता है, जिसमें वाणिज्यिक ट्रेकिंग एप्लिकेशन और मोबाइल-फोन उपयोगकर्ताओं (जिसे मोबाइल टैगिंग कहा जाता है) के उद्देश्य से सुविधा-उन्मुख एप्लिकेशन दोनों शामिल हैं। क्यूआर कोड का इस्तेमाल यूजर को टेक्स्ट दिखाने, यूजर के डिवाइस पर वेबपेज खोलने, यूजर के डिवाइस में वीकार्ड कॉन्टैक्ट जोड़ने, यूनिफॉर्म रिसोर्स आइडेंटिफायर (यूआरआई) खोलने, वायरलेस नेटवर्क से कनेक्ट करने के लिए किया जा सकता है। सॉफ्टवेयर के रूप में या ऑनलाइन टूल के रूप में बहुत सारे क्यूआर कोड जनरेटर उपलब्ध हैं जो या तो मुफ्त हैं, या एक भुगतान सदस्यता की आवश्यकता है। क्यूआर कोड दिव-आयामी कोड के सबसे अधिक उपयोग किए जाने वाले प्रकारों में से एक बन गया है।

QR Code की बनावट

एक साधारण QR Code की संरचना वर्गाकार बॉक्स जैसी होती है, जिसके अंदर सफेद बैकग्राउंड के ऊपर काले वर्गाकार बॉक्स बने रहते हैं, जिसे किसी ईमेज कैप्चरिंग डिवाइस (कैमरा, स्मार्टफोन) के द्वारा पढ़ा जाता है। बारकोड रीडर QR Code को पढ़ने के लिए Reed-Solomon Code का इस्तेमाल करते हैं। मतलब वह ईमेज को जब तक स्कैन करता रहेगा जब तक सही डाटा तक नहीं पहुँच जाए। इस दौरान वह ईमेल में शामिल गलतियों को सुधारता रहता है। अधिकतर क्यू आर कोड ब्लैक एंड व्हाइट होते हैं। मगर यह रंगीन भी जेनरेट किये जाते हैं, और अपनी जरूरत के अनुसार इन्हे कस्टमाइज भी किया जा सकता है।

QR Code के प्रकार

QR Code की संरचना और उपयोग एवं उद्देश्य के आधार पर इसे दो वर्गों में बांट सकते हैं।

१. Static QR Code

इस बारकोड का उपयोग सार्वजनिक सूचना को प्रसारित करने के लिए किया जाता है, और इसे बहुत कम बार संपादित किया जाता है। इस QR Code को पोस्टर्स, टीवी विज्ञापन, अखबार, पत्रिका आदि में प्रकाशित किया जाता है। इस कोड का निर्माता सीमित जानकारी प्राप्त कर पाता है।

i. QR Code कितनी बार स्कैन किया गया।

ii. और जिस डिवाइस से स्कैन हुआ है उसका OS

२. Dynamic QR Code

यह एक प्रकार का Live QR Code होता है, जिसे समय-समय पर संपादित किया जाता है। इसे Unique QR Code भी कहते हैं। इस कोड का निर्माता कई प्रकार की जानकारी ट्रैक कर सकता है।

- i. स्कैन करने वाले का नाम
- ii. ईमेल आईडी
- iii. कितनी बार स्कैन किया
- iv. कोड में शामिल जानकारी तक पहुँच
- v. Conversation Rate आदि

QR Code की विशेषताएं

१. QR Code को मोबाईल फोन से भी स्कैन किया जा सकता है। इसके लिए विशेष बारकोड रीडर की जरूरत नहीं पड़ती है।
२. यह बारकोड Versatile होता है। इससे हम लगभग सभी प्रकार के Binary, Numerical, Alphabets डाटा को कूट (Encode) कर सकते हैं।
३. QR Code तेजी से स्कैन होता है। अर्थात यह अन्य बारकोड की तुलना में अधिक पठनीय है।
४. अन्य प्रकार (१D, २D) बारकोड की तुलना में क्यू आर कोड में बड़े पैमाने पर डाटा स्टोर किया जा सकता है।

QR Code के उपयोग

QR Code को बिजनेस के लिए विकसित किया गया था। और आज मार्केटिंग, विज्ञापन, शिक्षा, बिजनेस, प्रोद्योगिकी, संप्रेषण आदि क्षेत्रों में इसका इस्तेमाल किया जा रहा है। और यह आपकी कल्पना पर निर्भर करता है। आप एक क्यू आर कोड को कैसे और कहाँ इस्तेमाल करना चाहेंगे?

१. QR Code का उपयोग किसी ब्रांड के लिए विज्ञापन चलाने के लिए किया जाता है। और वर्तमान समय में उपभोक्ता किसी ब्रांड की वेबसाइट को ब्राउज़र पर URL टाइप करने के बजाय QR Code स्कैन कर तेजी से ओपन कर सकते हैं।
 २. QR Code में Hyperlinks (वेबपेज का पता) समाहित होता है, जिस कारण QR Code को किसी बस, मैगज़ीन, बिजनेस कार्ड आदि जगहों पर आसानी से देखा जा सकता है। जिससे यूज़र उस QR Code को स्कैन कर किसी विषय पर जानकारी प्राप्त कर सकते हैं।
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३. QR Code का उपयोग मुद्रा के लिये भी किया जाने लगा है. जून २०११ में Royal Dutch Mint द्वारा दुनिया का पहला QR Code मुद्रा लॉन्च किया तथा इसके सिक्के (Coins) को स्मार्टफोन से Scan करने पर लिंकड वेबसाइट से उस सिक्के के इतिहास तथा जुड़ी अन्य जानकारी प्राप्त होती होती हैं.

४. QR Code का उपयोग वेबसाइट में लॉगिन करने के लिए किया जा सकता है. कंप्यूटर स्क्रीन पर QR Code दर्शाया जाता है, तथा जब कोई वेरिफाइड यूजर स्मार्टफोन से स्कैन करता है तो ऑटोमैटिक लॉगिन हो जाता है. WhatsApp अपने डेस्कटॉप यूजर से इसी तरह लॉगइन करवाता हैं.

५. QR Code में बैंक अकाउंट जानकारी, क्रेडिट कार्ड जानकारी समाहित की जा सकती है. और वर्तमान समय में अनेक ऐसी वेबसाइट हैं, जिनमें QR Code का इस्तेमाल कर भुगतान किया जा सकता है. खासकर विकासशील देशों चीन, भारत आदि देशों में यह तरीका काफी लोकप्रिय है जिससे लोग सुविधाजनक रूप से पेमेंट कर पा रहे हैं. BHIM UPI तथा नय यूपीआई एवं प्रीपैड वॉलेट इसके उदाहरण हैं.

६. QR Code के द्वारा ऑफलाईन ट्रेकिंग भी कर सकते हैं. और अखबार, पत्रिका, बैनर तथा अन्य पारंपरिक तरीकों में विज्ञापित की गई आपकी कोई वेबसाइट या अन्य डिजिटल प्रोडक्ट को ट्रैक कर सकते हैं. और ऑनलाईन विज्ञापन की तरह इसके बारे में भी कुछ जानकारी प्राप्त कर सकते हैं. जैसे कितने लोगों ने कोड को स्कैन किया, किस डिवाइस से स्कैन किया, नाम, ईमेल पता आदि.

७. आप बिना नंबर लिखे SMS भेज सकते हैं. इसके लिए आपको बस एसएमएस भेजने वाले का क्यू आर कोड स्कैन करना पड़ेगा. स्कैन करते ही नंबर आ जाता हैं. आप मैसेज टाईप कीजिए और भेज दीजिए.

८. अपनी सोशल प्रोफाईल, ऑफिस, घर का पता या किसी स्थान विशेष की लोकेशन भी क्यू आर के माध्यम से शेयर कर सकते हैं.

९. अपने V-Card (बिजनेस कार्ड, विजिटिंग कार्ड) के पीछे अपने पूरे पते या फिर ऑनलाईन बायोडाटा पेज का पता छाप सकते हैं.

QR Code कैसे स्कैन करें

QR Code स्कैन करने के लिए हमें किसी विशेष उपकरण की जरूरत नहीं पड़ती हैं. हम अपने स्मार्टफोन से भी इसे स्कैन कर सकते हैं. इसके लिए आप निम्न स्टेप का पालन कीजिए.

Step: #१

अपने स्मार्टफोन में इंस्टॉल किसी ऐसे एप को चालू कीजिए. जिसमें QR Code स्कैन करने का फीचर मौजूद है. जैसे; Paytm आप चाहे तो प्ले स्टोर से कोई QR Reader भी डाउनलोड कर सकते हैं.

Step: #२

अब जिस कोड को स्कैन करना है उसके ऊपर अपने मोबाईल फोन के कैमरे को पॉइंट कीजिए.

Step: #३

स्कैन करते ही आप सीधे लक्षित वेबपेज पर पहुँच जाएंगे. यानि जो सूचना इस कोड में होगी वह आपके सामाने खुल जाएगी.

QR Code कैसे बनाए

आप अपना खुद का QR Code भी निर्माण कर सकते हैं इसके लिए इंटरनेट पर बहुत सारे फ्री टूल मौजूद हैं. जिनकी मदद से आप अपनी वेबसाइट, एप, यूट्यूब चैनल, विजिटिंग कार्ड, कोई प्रोडक्ट आदि के लिए QR Code बना सकते हैं.

अपना खुद का क्यू आर कोड बनाने के लिए आप नीचे दिए गए किसी भी एक वेबसाइट पर जाकर QR Code Generate कर सकते हैं.

१. <https://www.forqrcode.com>

२. <https://www.free-qr-code.net>

३. <https://www.goqr.me>

४. <https://www.qr-code-generator.com>

QR Code कितना सुरक्षित है?

QR Code को स्कैन करना ज्यादा सुरक्षित नहीं समझा जाता है. क्योंकि स्कैन करने वाले को नहीं पता होता है कि इस QR Code में क्या जानकारी कूट की गई है. मगर फिर भी इसके ज्यादा खतरे नहीं हैं. आप केवल किसी अंजान वेबसाइट या एप पर ही जाएंगे. इससे ज्यादा कुछ नहीं होगा. इसलिए QR Code स्कैन करने से पहले उसे प्रकाशित करने वाले लोग, संस्था के बारे में जानकारी कर लें. और जब आपको लगे कि इस संस्था, व्यक्ति पर विश्वास किया जा सकता है तभी उनके द्वारा बनाए गए कोड को स्कैन करें.

QR कोड और कोविड -१९

COVID -१९ महामारी में QR कोड एक "Touchless" प्रणाली के रूप में विशेष रूप से उद्योग में, प्रदर्शन, जानकारी, मेनू के लिए इस्तेमाल किया या अपडेट किए गए उपभोक्ता जानकारी प्रदान करते हैं। होटल्स में टेबल पर क्यूआर कोड विवरण के साथ कागज या टुकड़े टुकड़े वाले प्लास्टिक मेनू को बदल दिया, जिसने मेनू का एक ऑनलाइन संस्करण खोला। इसने सिंगल-यूज पेपर मेन्यू के निपटान की आवश्यकता को रोक दिया, या प्रत्येक उपयोग के बाद स्थायी मेनू के लिए सफाई और स्वच्छता प्रक्रियाओं को स्थापित किया। स्थानीय टेलीविजन स्टेशनों ने भी स्थानीय न्यूजकास्ट पर कोड का उपयोग करना शुरू कर दिया है ताकि दर्शकों को महामारी से जुड़ी कहानियों या सूचनाओं तक त्वरित पहुंच की अनुमति मिल सके, जिसमें परीक्षण और टीकाकरण शेड्यूलिंग वेबसाइट, या न्यूजकास्ट में उल्लिखित कहानियों के लिंक शामिल हैं। कई ऑस्ट्रेलियाई राज्यों में संरक्षकों को संपर्क ट्रेसिंग में सहायता के लिए प्रवेश पर दुकानों, क्लबों, सुपरमार्केट और अन्य सेवा और खुदरा प्रतिष्ठानों पर क्यूआर कोड स्कैन करने की आवश्यकता होती है। सिंगापुर, यूनाइटेड किंगडम और न्यूजीलैंड ने समान प्रणालियों का इस्तेमाल किया।

शिक्षा में वास्तविक जीवन क्यूआर कोड उदाहरण

छात्रों को शैक्षिक सामग्री तक पहुंचने में मदद करने के लिए हार्वर्ड विश्वविद्यालय क्यूआर कोड का उपयोग करता है। हार्वर्ड विश्वविद्यालय के प्रोफेसरों में से एक क्यूआर कोड का उपयोग करता है ताकि छात्र अपने स्मार्टफोन पर शैक्षिक सामग्री तक पहुंच सकें।

क्यूआर कोड उन वेबसाइट पतों को एम्बेड करते हैं जिनमें अनुसंधान के तरीकों, अनुसंधान के नैतिक आचरण और विज्ञान में विवादों के बारे में जानकारी होती है। वेस्ट वर्जीनिया विश्वविद्यालय अंतरराष्ट्रीय भर्ती कार्यक्रमों के दौरान क्यूआर कोड का उपयोग करता है।

कर्मियों में से एक ने उल्लेख किया कि वे उक्त तकनीकी उपकरण का उपयोग कर रहे हैं क्योंकि यह एशियाई देशों में बहुत लोकप्रिय है और इसे उक्त दर्शकों के लिए एक आदर्श विपणन उपकरण के रूप में मानते हैं। कॉलेज जैसे अपने व्यक्तिगत कार्यक्रमों के लिए, उन्होंने क्यूआर कोड का उपयोग किया ताकि छात्र एक साधारण स्कैन द्वारा आसानी से जानकारी प्राप्त कर सकें। मलेशियाई विश्वविद्यालय छात्र उपस्थिति को ट्रैक करने के लिए क्यूआर कोड का उपयोग करता है। एक मलेशियाई

विश्वविद्यालय एक नया और डिजिटल तरीका लेकर आया है। क्यूआर कोड का उपयोग कर छात्रों की उपस्थिति दर्ज करें। छात्र एक व्याख्यान द्वारा प्रोजेक्शन स्क्रीन पर प्लास्टर किए गए कोड को स्कैन कर सकते हैं और अपनी उपस्थिति सत्यापित करने के लिए आगे बढ़ सकते हैं। क्यूआर कोड केवल सीमित समय के लिए मान्य है इसलिए छात्रों को कक्षा में जल्दी आना चाहिए।

यदि आप अभी भी सोच रहे हैं कि ऐसा क्यों हो रहा है, तो आप निश्चित रूप से प्रौद्योगिकी के बारे में महान बातें नहीं जानते हैं। हो सकता है कि आपको उनका परीक्षण करने का अवसर न मिले या आपने बस कोशिश नहीं की। किसी भी तरह से, आप उनका उपयोग न करके बहुत अधिक क्षमता खो रहे हैं।

१ <https://www.bhaskar.com>

२ <https://www.dnaindia.com>

३ <https://www.tutorialpandit.com>

४ https://hi.wikipedia.org/wiki/यूनाइटेड_किंगडम

५ <https://hi.qrcodechimp.com/>





जोटेरो: एक व्यक्तिगत शोध सहायक

Zetero: A Personal Research Assistant

डॉ. रामनिवास शर्मा

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एमिटी यूनिवर्सिटी, ग्वालियर

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सारांश: शोध प्रबंधन एक शोध का सबसे महत्वपूर्ण चरण होता है। इसमें उद्धरणों को हमेशा एक लेख की रीढ़ की हड्डी माना जाता है। उद्धरणों की मदद से लेख की महत्वपूर्णता का ज्ञान आसानी से प्राप्त किया जा सकता है। इनकी मदद से एक बिन्दु/विषय के बारे में शोधार्थी आसानी से संपूर्ण ज्ञान अर्जित कर सकता है। यह लेख उद्धरणों के प्रबंधन के लिए जोटेरो (ओपन सोर्स सॉफ्टवेयर) के कार्यों के बारे में वर्णन करता है, और उद्धरणों का प्रतिनिधित्व करने के लिए जोटेरो की क्षमताओं की भी पड़ताल करता है। जोटेरो मुफ्त, उपयोग में आसान सॉफ्टवेयर है जो आपको शोध स्रोतों को सहेजने, प्रबंधित करने

और उद्धृत करने में मदद करता है। इस लेख में शोधकर्ताओं द्वारा अपने संसाधनों को एकत्र करने, व्यवस्थित करने, उद्धृत करने और साझा करने के लिए जोटेरो, सॉफ्टवेयर को एकीकृत करने का प्रयास किया गया है।

मुख्य शब्द: संदर्भ/उद्धरण प्रबंधन, संदर्भ प्रबंधन उपकरण, जोटेरो आदि।

१ परिचय (Introduction)

अनुसंधान आधुनिक युग में किसी भी देश के चहुमुखी विकास के लिए अनिवार्य एवं आवश्यक है। आज शोध एक ऐसा आवश्यक एवं अनिवार्य कार्य हो चुका है जिसकी मदद से देश, समाज एवं व्यक्ति अपना विकास कर सकता है। शोध को सफल बनाने में सूचना की आवश्यकता होती है जो किसी भी स्वरूप में हो सकती है। वर्तमान में सूचना को एक साधन एवं शक्ति माना जाने लगा है। मानव के सामाजिक, सांस्कृतिक एवं राजनैतिक विकास में शोध का योगदान एवं प्रभाव समान रूप से अनुभव किया गया है। शोध करने के लिए नवीन सूचना एवं ज्ञान की परम आवश्यकता होती है क्योंकि शोध में इनपुट एवं निजी आउटपुट दोनों ही सूचना एवं ज्ञान हैं। आज सरकार एवं निजी दोनों की स्तरों पर शोध को बढ़ावा दिया जा रहा है। आज शोध को चारों ओर से बढ़ावा दिया जा रहा है ताकि राष्ट्र का विकास हो सके। शोध एक बौद्धिक क्रियाकलाप है जो कि समस्याओं पर किया जाता है जिससे उनका निदान हो सके और मानव समाज लाभान्वित हो सके। शोध एक सतत् प्रक्रिया है जिसमें व्यवस्थित एवं क्रमबद्ध चरणों का उपयोग किया जाता है। इन चरणों का उपयोग करके एक सत्य/बिन्दु पर शोधार्थी पहुँचता है। इसमें संबंधित साहित्य का पुनरावलोकन एक महत्वपूर्ण शोध चरण है।

संबंधित साहित्य की समीक्षा नए शोध के लिए अति आवश्यक है। शोधार्थी के लिए साहित्य संबंधित साहित्य की समीक्षा अति आवश्यक है ताकि उसे अपनी समस्या से संबंधित पूर्व अनुसंधान को ज्ञान हो सके एवं यह समझ सके कि पूर्व अनुसंधान में क्या कार्य किया

गया है। इससे किया जाने वाला अनुसंधान नियोजित तरीके से सम्पन्न होता है। इसमें शोधार्थी अनुसंधान से संबंधित शोध प्रबंधों, लेखों व अन्य स्वरूपों में उपलब्ध अध्ययन सामग्री का अध्ययन करता है। इससे अच्छे एवं स्पष्ट परिणाम प्राप्त होते हैं। अन्यथा श्रम, समय आदि की बर्बादी होती है और प्राप्त सूचना व्यर्थ जाती है। इसमें शोधार्थी अभी तक किए गए अनुसंधान का सार भी प्रस्तुत करता है। साथ ही साथ इससे यह भी आसानी से ज्ञात हो जाता है कि उसका अनुसंधान कार्य पूर्ववर्ती अनुसंधान कार्यों से किस तरह भिन्न है।

२ उद्धरण और संदर्भ (Citing and Referencing)

पाठ में विचार या ज्ञान के मूल स्रोत को स्वीकार करने के लिए और शोध पत्र के अंत में लेखक उन स्रोतों का विवरण सूचीबद्ध करता है जो क्रमशः पाठ में उद्धरण (in-text citation) और संदर्भ (referencing) को संदर्भित करता है। इन—टेक्स्ट उद्धरण और संदर्भों के लिए विभिन्न शैलियाँ उपलब्ध हैं। एपीए, हार्वर्ड, एमएलए, शिकागो आदि का उपयोग किया जाता है।

३ संदर्भों का उपयोग (Use of References)

संदर्भ का उपयोग निम्नलिखित कारणों से किया जाता है:—

- १ विचार के मूल स्रोत को श्रेय देकर, साहित्यिक चोरी से बचने के लिए।
- २ अन्य पाठकों को विचार के मूल स्रोत को खोजने में मदद करना।
- ३ आपके द्वारा खोजे गए विषय के साथ अपने ज्ञान का प्रदर्शन करने के लिए।
- ४ अन्य लेखकों के साथ अपने काम की पुष्टि और समर्थन करने के लिए।

4 इलेक्ट्रॉनिक संदर्भ प्रबंधक के लाभ (Benefits of Electronic Reference Manager)

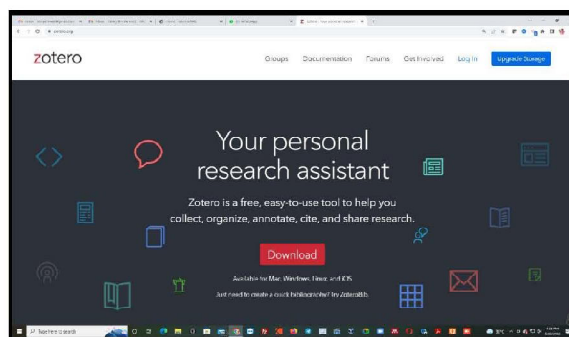
- १ यह समय, प्रयास और संसाधनों की बचत करता है।
 - २ शोधार्थियों की दक्षता में वृद्धि करता है।
 - ३ जानकारी को स्टोर और साझा करना आसान।
-

४ खोजने, पुनर्प्राप्ति करने और उद्धृत करने में आसान।

६ उद्धरण शैलियों को बदलना आसान।

जोटेरो शोध को इकट्ठा करने, व्यवस्थित करने, व्याख्या करने, उद्धृत करने और साझा करने में आपकी मदद करने के लिए एक मुफ्त, उपयोग में आसान टूल है। जोटेरो खुला स्रोत है और एक स्वतंत्र, गैर-लाभकारी संगठन द्वारा विकसित किया गया है जिसका आपकी निजी जानकारी में कोई वित्तीय हित नहीं है। जोटेरो के साथ, आप हमेशा अपने डेटा के नियंत्रण में रहते हैं।

५ जोटेरो (Zotero)

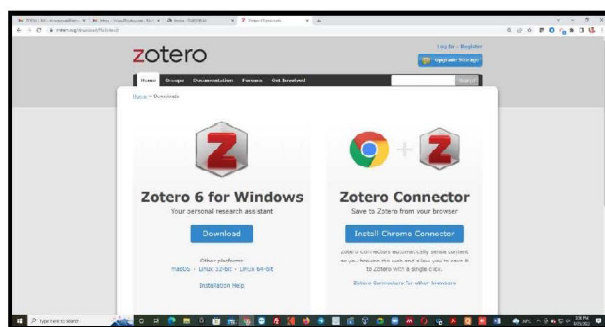


विंडोज के लिए (For windows)

इसे विंडो के माध्यम से, डाउनलोड पर क्लिक करके डाउनलोड किया जा सकता है। डाउनलोडिंग विकल्प दो प्रकार की डाउनलोडिंग प्रदान करता है अर्थात् विंडो के लिए और जोटेरो कनेक्टर। यह एक डेस्कटॉप आधारित साफ्टवेयर है जो ऑफलाइन भी काम करता है।

पहले विंडोज के लिए जोटेरो ६ के नीचे दिए गए डाउनलोड पर क्लिक करें और फिर जोटेरो कनेक्टर को स्थापित करने के लिए जोटेरो कनेक्टर पर क्लिक करें। यह वेब पेजों को जोटेरो लाइब्रेरी से नेविगेशन करने में सक्षम बनाता है। उदाहरण के लिए ऑनलाइन के माध्यम से शोध लेखों को आयात करने के लिए जोटेरो कनेक्टर का उपयोग किया जाता है, जैसे गूगल स्कोलर। जोटेरो के अन्य प्लेटफॉर्म मैकओएस (macOS), लिनक्स ३२-बिट (Linux 32-bit), लिनक्स

६४-बिट (Linux 64-bit) है।



जोटेरो ऑनलाइन खाता (Zetero Online Account)

कोई भी शोधार्थी लॉग इन (Log in) पर क्लिक करके अपना निःशुल्क खाता भी बना सकता है। यह खाता कहीं भी और कभी भी संदर्भित करने के लिए लेखों की ऑनलाइन पहुंच के लिए उपयोगी है। यह व्यक्तिगत शोध पुस्तकालय को क्लाउड आधारित सर्वर बैकअप सुविधा प्रदान करता है जो अन्य जोटेरो समूहों के साथ संदर्भ साझा कर सकता है।

संग्रह फोल्डर (Collection Folder): यह विकल्प शोधकर्ताओं को प्रत्येक परियोजना या कार्य के लिए फोल्डर बनाने की सुविधा प्रदान करता है। इन फोल्डरों में संग्रह के अनुसार साहित्य की समीक्षा को संग्रहित किया जा सकता है।

साहित्य का संग्रह (Collection of Literature): जोटेरो के उपयोगकर्ता फोल्डर में तीन तरीकों से शोध पत्र एकत्र कर सकते हैं:

❖ **मैन्युअल रूप से (Manually):** नए आइटम विकल्प पर क्लिक करके कोई भी अपना संग्रह मैन्युअल रूप से बना सकता है। यहां उपयोगकर्ता आइटम प्रकार जैसे ग्रंथ, लेख, शोध प्रबंध आदि का चयन कर सकता है और मैन्युअल रूप से शीर्षक, लेखक, स्रोत आदि, जैसे विशेष साहित्य की ग्रंथसूची जानकारी दर्ज कर सकता है। इस तरह शोधकर्ता अपने संग्रह का डेटाबेस मैन्युअल रूप से बना सकता है। इस डेटाबेस को कभी भी उद्धृत किया जा सकता है।

❖ **आइडेंटिफायर द्वारा आइटम जोड़ें (Add Item(s) by Identifier) :** यदि ISBN या DOI (डिजिटल ऑब्जेक्ट आइडेंटिफायर)

नंबर उपलब्ध है तो कोई भी आइडेंटिफायर द्वारा ऐड आइटम पर क्लिक कर सकता है। चयनित लेख का DOI आइडेंटिफायर के खोज टेक्स्ट क्षेत्र में दर्ज करें। अब जोटेरो स्वचालित रूप से उस पेपर का मेटाडेटा प्राप्त करेगा और आपकी व्यक्तिगत लाइब्रेरी या फोल्डर में संग्रहीत कर देगा।

❖ **वेब/ऑनलाइन से आयात (Import from Web/Online):**

उपयोगकर्ता भी वेब या ऑनलाइन से साहित्य के मेटाडेटा को अपने पुस्तकालय में आयात कर सकता है। मान लीजिए कि कोई उपयोगकर्ता अपने कीबोर्ड के अनुसार Google Scholar से साहित्य खोजना चाहता है। ब्राउजर पर जोटेरो नेविगेशन फोल्डर इसका रंग बदलकर पीला कर देता है। ऑनलाइन आयात करने के लिए लेखों का चयन करें और ओके पर क्लिक करें। यह आपके विशिष्ट फोल्डर या लाइब्रेरी में मेटाडेटा के साथ लेख आयात करेगा।

❖ **ड्रैग एंड ड्रॉप मेथड (Drag and Drop Method):** जोटेरो का यह

विकल्प किसी पेपर के संदर्भों को त्वरित रूप से जोड़ने के लिए सबसे अच्छा उदाहरण है। इस तकनीक को प्राप्त करने के लिए, केंद्र कॉलम में संदर्भों का चयन करें फिर, जोटेरो द्वारा एक क्रमांकित और वर्णानुक्रमित ग्रंथ सूची स्वचालित रूप से बनाई जाएगी।

नोट (Notes): दो प्रकार के नोट, यानी स्टैंडअलोन नोट और चाइल्ड नोट, को नोट्स पर क्लिक करके आयात लेख में जोड़ा जा सकता है।

संलग्नक (Attachment): उपयोगकर्ता अपने पुस्तकालय में पहले से आयातित शोध लेख में सहेजी गई किसी भी फाइल को संलग्न कर सकता है। कोई विशेष दस्तावेज का लिंक भी संलग्न कर सकता है।

वर्ड प्रोसेसर के साथ एकीकरण (Integration with Word Processor):

जोटेरो डेटाबेस में संग्रहीत ग्रंथसूची डेटा का सबसे विशिष्ट उपयोग शोध पांडुलिपियों के लिए उद्धरण उत्पन्न करना है। इन—टेक्स्ट उद्धरण और ग्रंथसूची बनाने से पहले किसी को ऐड—ऑन प्रक्रिया से गुजरना

पड़ता है। एडिट और फिर प्रेफरेंस पर क्लिक करें और फिर इंस्टाल एमएस—वर्ड ऐड इन पर क्लिक करें। जोटेरो एमएस—वर्ड और लिब्रे ऑफिस को सपोर्ट करता है।

१ टेक्स्ट उद्धरण में: टेक्स्ट में जहां उपयोगकर्ता उद्धरण जोड़ना चाहता है क्लिक करें, जोटेरो मेनू से उद्धरण जोड़ें/संपादित करें बटन पर क्लिक करें। आइटम या पेपर का चयन करें, फिर ठीक क्लिक करें उपयोगकर्ता दस्तावेज में एक उचित रूप से स्वरूपित उद्धरण डूँढ सकता है।

२ ग्रंथसूची सम्मिलित करें: इस बटन का उपयोग करके, उपयोगकर्ता उसके द्वारा बनाई गई सभी संदर्भित वस्तुओं से एक ग्रंथसूची तैयार कर सकता है।

३ रीफ्रेश बटन: यह बटन यूजर के जोटेरो कलेक्शन में किसी भी बदलाव के साथ रेफरेंस को अपडेट करता है।

इन—टेक्स्ट उद्धरण और ग्रंथसूची (In-Text Citation and Bibliography):

पाठ में उद्धरण और पांडुलिपियों में ग्रंथसूची जोटेरो का बहुत महत्वपूर्ण कार्य है। जोटेरो में उद्धरण की विभिन्न शैलियाँ हैं। कोई भी पत्रिका या प्रकाशक की आवश्यकता के अनुसार किसी का भी चयन कर सकते हैं।

जोटेरो लाभ (Zetero Benefits):

- १ यह बिना किसी लाइसेंस के मुफ्त उपलब्ध है।
 - २ इसे ऑफलाइन भी चलाया जा सकता है।
 - ३ संदर्भ अन्य शोधकर्ताओं के साथ आसानी से साझा किए जा सकते हैं। एनोटेशन संभव है।
 - ४ पीडीएफ फाइल से मेटाडेटा आयात करना संभव है। जोटेरो बिबटेक्स, आरडीएफ, आरआईएस और एमओडीएस डेटा प्रारूप आयात कर सकता है।
 - ५ प्रशस्ति पत्र और ग्रंथसूची बहुत उपयोक्ता मैत्रीपूर्ण है।
 - ९ ऑफलाइन और ऑनलाइन Zotero डेटाबेस के बीच तादात्म्य (Synchronization) संभव है।
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६ निष्कर्ष (Conclusion): हम सभी जानते हैं कि साहित्य की समीक्षा के लिए वैज्ञानिक साहित्य का प्रबंधन करना बहुत कठिन था। यह न केवल संदर्भ प्रबंधक है, यह दस्तावेज संग्रहकर्ता, उद्धरण प्रबंधक और सहयोग उपकरण भी है। अधिकतर उपयोगकर्ता संदर्भों को प्रारूपित करने के लिए एमएस—वर्ड का उपयोग करते हैं। यह समय लेने वाला और त्रुटि प्रवण था। धन की कमी के कारण सभी पुस्तकालयों द्वारा उद्धरण प्रबंधक के लिए वाणिज्यिक सॉफ्टवेयर क्रय करना संभव नहीं है। परंतु जोटेरो और मेंडेली जैसे मुफ्त लाइसेंसिंग संदर्भ प्रबंधन उपकरण के आगमन के साथ अनुसंधान प्रबंधन में इन सॉफ्टवेयर का उपयोग करना संभव हो गया है। वर्ड प्रोसेसर के साथ जोटेरो का एकीकरण इसे अंतिम सॉफ्टवेयर बनाता है। इस सुविधा का उपयोग करके उपयोगकर्ता अपने लेखों में नवीन उद्धरण और ग्रंथसूची को आसानी से सम्मिलित कर सकते हैं। यद्यपि जोटेरो की कुछ सीमाएँ हैं लेकिन अंततः यह मुफ्त है और इसमें एक अच्छा शोध प्रबंधन उपकरण बनने के लिए सभी अच्छी सुविधाएँ हैं। सभी पुस्तकालय पेशेवरों को यह अनुशंसा की जाती है कि वे इसे सीखने और इसका उपयोग करने के लिए अनुसंधान विद्वानों, संकाय और छात्रों को प्रोत्साहित करें।

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सेरा (कंसोर्टियम फॉर ई—रिसोर्स
इन एग्रीकल्चर): एक कुशल अश्व

CeRA(Consortium for e-Resources in Agriculture): A Skilled Horse

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{आज का समय सूचना प्रौद्योगिकी का समय है जिसमें संसाधन साझेदारी एक महत्वपूर्ण समस्या या कदम है। आज ग्रंथालयों के स्वरूप को सूचना प्रौद्योगिकी की ने पूर्ण रूप से परिवर्तित कर दिया है। ग्रंथालयों का अस्तित्व उपयोक्ताओं की विभिन्न सूचना आवश्यकताओं की पूर्ति के लिए होता है। इसी दिशा में कंसोर्टियम का उद्भव हुआ। अर्थात् संसाधन साझेदारी की आवधारणा ग्रंथालय कंसोर्टियम के रूप में विकसित हुई है। कंसोर्टियम के माध्यम से ग्रंथालय सीमित साधनों में अधिक सूचना सामग्री को क्रय कर सकता है। यह शोधार्थियों के लिए

एक महत्वपूर्ण सूचना स्रोत है जहां से वह सूचना को प्राप्त कर अपने शोध के स्तर को बढ़ा सकता है। यह एक समूह है जिसमें एक ही विषय या सम्बंधित विषयों के संस्थान आदि जुड़े रहते हैं। यहा सेरा (CeRA- Consortium for e-Resources in Agriculture) को स्पष्ट किया गया है। यह कृषि विषय का एक महत्वपूर्ण कंसोर्टियम है जिसे कृषि ग्रंथालयों के लिए बनाया गया है। इसे आईसीएआर से सम्बंधित ग्रंथालय उपयोग कर रहे हैं। इस आलेख में ब्मत। को पूर्ण रूप से समझाया गया है।}

प्रस्तावना (Introduction)

वर्तमान समय सूचना प्रौद्योगिकी का युग है जो नई—नई परिस्थितियों में समाज, व्यक्ति और देश की रीढ़ की हड्डी बनी हुई है। आज सभी प्रकार की परिस्थितियाँ सूचना प्रौद्योगिकी से प्रभावित हो रही हैं। यूनेस्को के अनुसार “सूचना तकनीकी वह उपकरण है जिसके द्वारा सूचना का संग्रह, विखण्डन, प्रक्रिया तथा प्रकीर्णन किया जाता है।” इस प्रौद्योगिकी से ग्रंथालय एवं सूचना विज्ञान केन्द्र भी अछुते नहीं रहे हैं। इसने ग्रंथालयों के विचार को पूरी तरह से परिवर्तित कर दिया है। व्यक्ति आज ग्रंथालयों में आये बिना ही इलेक्ट्रॉनिक फार्मेट में सूचना को घर बैठे ही आसानी से सूचना एवं संप्रेषण प्रौद्योगिकी(ICTs) की मदद से प्राप्त कर रहा है। इसमें ग्रंथालयकंसोर्टियम एवं ओपेक की मदद से एवं डब्ल्यूडब्ल्यूडब्ल्यू (WWW) की मदद से ज्ञान को प्राप्त कर रहा है। २१^{वीं} शताब्दी का एक ऐसा माध्यम है जो सूचनासंग्रहण एवं वितरण करता है। सूचना प्रौद्योगिकी के कारण कई प्रकार के नये—नये विचार उभर कर सामने आये हैं, जैसे डिजिटल लाइब्रेरी, वर्चुअल लाइब्रेरी, ई—लाइब्रेरी, ई—बुक्स, ई—जर्नल, ई—पब्लिसिंग, ई—थिसिस आदि। आज विभिन्न प्रकार के कंसोर्टियम भारत एवं भारत के बाहर लोगों की सेवा में लगे हुये हैं। ये ऐसे समूह हैं जो मिलकर एक सामान्य उद्देश्य की पूर्ति हेतु संगठित होते हैं। ये समूह ग्रंथालयों के भी हो सकते हैं। ये स्थानीय, प्रादेशिक, राज्यीय, राष्ट्रीय एवं अन्तर्राष्ट्रीय स्तर के होते हैं।

विशेषताएँ (Features)

1. इस प्रकार के समूहों का प्राथमिक उद्देश्य अपने यहां उपलब्ध संसाधनों का आपसी सहयोग से उपयोग करना है।
 2. प्रत्येक समूह बौद्धिक शोध एवं विकास के लिए अपने स्तर पर कार्य करता है।
 3. सूचना एवं संप्रेषण प्रौद्योगिकी के कारण सेवाएँ लागत प्रभावी हो जाती हैं।
 4. प्रदान की जाने वाली सेवाएँ उच्च गुणवत्ता की होती हैं।
- आज विभिन्न प्रकार के कंसोर्टियम कार्य कर रहे हैं: इन्डेस्ट (INDEST), सीएसआईआर(CSIR), फोरसा(FORSA), यूजीसीइन्फोनेट(UGC-INFONET), आईआईएम(IIM), सेरा(CeRA) आदि।

लाभ(Advantage)

1. कंसोर्टियम आधारित अनुदान से कम लागत में ज्यादा से ज्यादा ई—संसाधनों तक पहुंचा जा सकता है।
2. इसमें ग्रंथालय सेवाओं, जैसे CAS,SDI को आसानी से प्रदान किया जा सकता है।
3. वित्त का अधिकाधिक उपयोग सम्भव।
4. इसमें संग्रह की अपेक्षा उपयोग पर ज्यादा बल दिया जाता है।
5. इससे २४/७ समय सुविधाएं प्राप्त की जा सकती हैं।
6. इससे ग्रंथालय के स्थान की काफी बचत होती है।

सेरा(CeRA-Consortium for e-Resources in Agriculture)

यह कृषि के क्षेत्र का एक भारतीय कंसोर्टियम है जो राष्ट्रीय कृषि शोध तंत्र ग्रंथालयों के लिये भारतीय कृषि अनुसंधान परिषद (ICAR) के द्वारा संचालित किया जा रहा है। इन्टरनेट सुविधाओं और टेक्नॉलाजी की मदद से राष्ट्रीय एवं अन्तर्राष्ट्रीय स्तरकी महत्वपूर्ण पत्रिकाओं को ऑनलाइन आसानी से शोधार्थी एवं विशेषज्ञ प्राप्त कर सकते हैं। आईसीएआरएक महत्वपूर्ण संस्थान है जो कृषि के क्षेत्र में शोध, शिक्षा और प्रसार को बढ़ाने की जिम्मेदारी लिए हुए है। इसकी

स्थापना १६ जुलाई १९२९ को 'Societies Registration Act-1860' के अन्तर्गत की गई थी। इसकी स्थापना में रॉयल कमीशन ऑफ एग्रीकल्चर का महत्वपूर्ण योगदान है। इसका मुख्यालय कृषि भवन, नई दिल्ली में है। यह सम्पूर्ण देश में कृषि शोध एवं शिक्षा के लिए समन्वय, सलाह एवं प्रबंध के लिए एक शीर्ष निकाय (Apex Body) की तरह कार्य कर रही है। कृषि में उद्यानीकी, मत्स्य पालन, पशुपालन एवं पशु विज्ञान शामिल है।

यह हरित क्रान्ति के दौर में एक कुशल अश्व की तरह तीव्र गति से कार्य कर रही है। यह कृषि के क्षेत्र में उच्चशिक्षा को प्रोत्साहित करने में एक महत्वपूर्ण भूमिका अदा करती है। आज कृषि से सम्बंधित सभी प्रकार के संस्थानों, ग्रंथालयों का महत्वपूर्ण योगदान है। ये विशिष्ट प्रकार के ग्रंथालय छात्रों के साथ-साथ शोधार्थियों एवं शिक्षकों की शैक्षणिक एवं शोधपरक गतिविधियों की गुणवत्ता में सुधार लाने में अहम् भूमिका निभा रही है। ये ग्रंथालय स्वयं के बजट में ही संचालित किये जाते हैं। सूचना विस्फोट के कारण अन्य विषयों की तरह कृषि भी अछुता नहीं रहा है। आज कृषि भी एक बहुआयामी विषय बन चुका है।

आज इन संस्थानों के ग्रंथालय भी सूचना एवं सम्प्रेषण प्रौद्योगिकी (ICT) के कारण २४/७ कार्य कर रहे हैं एवं अपने उपयोगकर्ताओं को सभी प्रकार की आवश्यक सेवाएँ एवं सामग्री प्रदान कर रही हैं। इसी दृष्टिकोण से कंसोर्टियम एक उभरता हुआ विचार है जो सभी प्रकार के संसाधनों को जोड़ कर कम से कम बजट में ज्यादा से ज्यादा उपयोगकर्ताओं को सेवाएँ प्रदान कर रहा है। इन कंसोर्टियम में कई प्रकार के संस्थान एवं प्रकाशक जुड़ कर योगदान दे रहे हैं। उपयोगकर्ता इससे असीमित डाउनलोडिंग, अभिगम कर रहा है। इसे किसी भी समय उपयोग किया जा सकता है। एक व्यक्ति इससे सारांश एवं पूर्ण पाठ्य के रूप में सामग्री को डाउनलोड कर सकता है। प्रत्येक कंसोर्टियम की निम्नलिखित मूलभूत आवश्यकताएँ हैं :

1. हार्डवेयर एवं सॉफ्टवेयर

2. नेटवर्किंग

3. डाउनलोडिंग सुविधा आदि

इन सभी की मदद से एक संस्था में आसानी से ई—संसाधनों का अभिगम किया जा सकता है। आईसीएआर विभिन्न संस्थानों, डिम्ड विश्वविद्यालयों, केन्द्रीय विश्वविद्यालयों को World Bank Project (NATP) 2006-2008 के प्रथम चरण में सुविधायें प्रदान कर रहे हैं। National Agriculture Innovation Project (NAIP) ICAR कोसेराको स्थापित करने के लिए वित्तीय सहायता प्रदान कर रहा है। इसकी स्थापना नवम्बर २००७ में कृषि से सम्बंधित शोधार्थियों एवं विशेषज्ञों को वैज्ञानिक पत्रिकाओं को ऑनलाइन उपलब्ध कराने के लिए की गई थी। शोधार्थी इसकी मदद से अपने शोध को उत्कृष्ट तरीके से सम्पन्न कर सकता है।

❖ यह विश्वविद्यालयों एवं शोधकेन्द्रों का एक राष्ट्रीय कंसोर्टियम है जो कृषि और सम्बंधित विषयों का भारत में प्रचार कर रहा है।

❖ इसे भारतीय कृषि अनुसंधान परिषद, नई दिल्ली प्रोत्साहित कर रही है।

❖ इसके लिए National Agriculture Innovation Project (NAIP) वित्त की व्यवस्था कर रहा है।

उद्देश्य (Objectives)

❖ भारतीय कृषि अनुसंधान परिषद संस्थाओं और विश्वविद्यालयों में शोध एवं विकास से सम्बंधित सूचना संसाधनों के आधार पर दुनिया के अग्रणी संस्थाओं/संगठनों से तुलना करना।

❖ राष्ट्रीय कृषि शोध तंत्र (NARS) के वैज्ञानिकों, शिक्षकों के लिए ई—पत्रिकाओं की सदस्यता लेना एवं उनके मध्य ई—उपयोग की संस्कृति पैदा करना ।

❖ NASS ID और SCI के द्वारा शोध प्रकाशनों के स्तरों के माध्यम से सेरा के प्रभाव को पता लगाना।



सेराको निम्नलिखित समितियों से संचालित किया जा रहा है:

1. विषय निर्वाचन समिति(Steering Committee):—सलाह एवं नीति निर्धारण
2. बातचीत और निगरानी समिति(Negotiation and Monitoring Committee):—प्रकाशको से समन्वय एवं गतिविधियों की प्रगति की निगरानी करना।
3. कार्यकारी समिति(Working Committee):—नवीन गतिविधियों पर विचार—विमर्श करना।

सेरा द्वारा प्रदान की जाने वाली सुविधाएं

1. आईपी प्रमाणीकरण के माध्यम से पत्रिकाओं/ई—संसाधनों तक पहुंच।
2. दस्तावेज वितरण अनुरोध प्रणाली (DDR)
3. रिमोट एक्सेस सुविधा के माध्यम से आकलन करें (Ez-Proxy)

संसाधन(Resources)

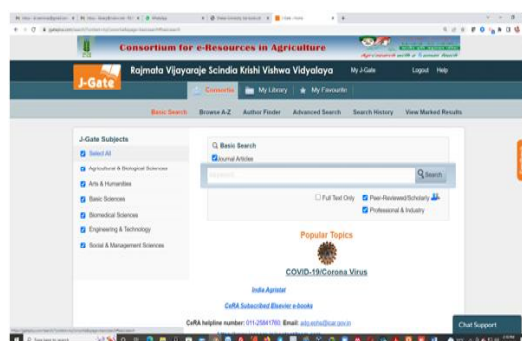
सेरा २८६१ से अधिक मुद्रित एवं इलेक्ट्रॉनिक पत्रिकाओं के डेटाबेसको संग्रहित किए हुए है। ये पत्रिकाएँ विभिन्न प्रकार के प्रकाशकों से प्राप्त कर कंसोर्टियममें जोड़ी गयी हैं। सेरा पर उपलब्ध संसाधनों को दो तरीके से प्राप्त किया जा सकता है:

1. IP Address
2. Non IP Address

IP Address की मदद से व्यक्ति या एक संस्था सेरा में उपलब्ध सारांश(Abstract) या पूर्ण पाठ्य(Fulltext)लेखों को प्राप्त

कर सकता है। CeRA के Web Portal को इस तरीके से डिजाइन किया गया है जिससे कृषि से सम्बंधित शोध एवं प्रशिक्षण की गुणवत्ता को सुधारा जा सके।

<https://jgateplus.com/search/?context=myConsortia&spage=basicsearch#basicsearch>



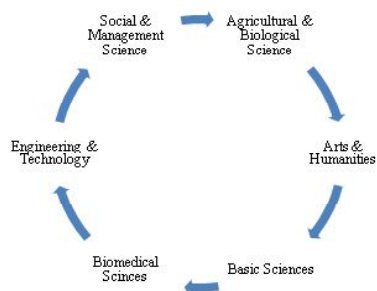
आलेखों की खोज(Searching of Articles)

सेरा से कई प्रकार के पत्रिका प्रकाशक जुड़े हुए हैं जो कृषि के साथ—साथ पशु—चिकित्सा विज्ञान, मत्स्य पालन, कम्प्यूटर साइंस, मशद्रा विज्ञान, पशु विज्ञान एवं फसल विज्ञान इत्यादि विषयों की सूचना प्रदान करते हैं। इसमें निम्नलिखित तरीकों से सूचना को खोजा जा सकता है:

- ❖ Basic/Quick Search (Keyword)
- ❖ Browse Journals (Title, Subject, Publisher Name)
- ❖ Author Finder
- ❖ Advanced Search (More Search Options)

इसमें बुलियन ऑपरेटर्स का (AND, OR, NOT) का भी उपयोग करके सूचना को खोजा जा सकता है। यहां पर आलेखों को सारांश, पूर्ण पाठ्य एवं पीडीएफ स्वरूप में प्राप्त किया जाता है। यहाँ आलेखों की पूर्ण ग्रंथात्मक सूचना रहती है। सेरा में पत्रिकाओं को शीर्षक(Title), विषय(Subject), प्रकाशक(Publisher) आदि से खोजा जा सकता है। इसमें अद्यतन(Update) सूचना भी प्राप्त की जा सकती है। इसमें निम्नलिखित विषयों के आलेखों को खोजा जा सकता

है:



शीर्षक से खोज करने पर आनुवांणिक सूची प्राप्त होती है जिसमें से किसी को भी क्लिक करके देखा जा सकता है। इसमें निम्नलिखित शब्द प्राप्त होते हैं जिससे वस्तु—स्थिति स्पष्ट हो जाती है कि पत्रिका की स्थिति क्या है।

FT- Full text

AL- Available in your Library

RA- Requesting the Article

सेरा में प्रत्येक पत्रिका के कई अंक दिए गए हैं जिन्हें अभिलेखागार(Archive) को क्लिक करके देखा जा सकता है। सेरा एक ऐसा कंसोर्टियम है जो गुणवत्तापूर्ण शोध एवं विकास में सहायक है। यह आईसीएआर संस्थान/कृषि विश्वविद्यालयों के शोधार्थियों एवं शिक्षकों में ई—अभिगम (E-Access)की संस्कृति को विकसित करने में लगा हुआ है। प्रसिद्ध पत्रिका प्रकाशक इससे जुड़े हुए हैं जिससे यह तीव्र गति से कृषि एवं सम्बंधित विषयों का विकास कर रहा है।

निष्कर्ष(Conclusion)

सेरा एक ऐसा कंसोर्टियम है जो कृषि से सम्बंधित शोध एवं विकास में लगा हुआ है। यह आईसीएआर के संस्थानों एवं विश्वविद्यालयों की सूचना के आधार पर विकास करने में प्रयासरत है। इसका मुख्य उद्देश्य/लक्ष्य ई—अभिगम की संस्कृति को वैज्ञानिकों, शिक्षकों में बढ़ाना है। आईसीएआर ने सूचना पुनर्प्राप्ति के क्षेत्र को पूर्ण रूप से विकसित कर दिया है।

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QR Code, Barcode, RFID application in Academic Library

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Abstract

This research paper, discusses how a library based on modern technology should try to connect with the digital world. Current 'users ' are getting information with just one click, especially for the new generation of students. He has become accustomed to getting information from the internet and later from traditional libraries. Every generation has become more and more interested in getting information faster

and easier with the internet. For them, searching the internet for information can be easier and faster than just reading an entire book. Libraries should therefore update their techniques from time to time accordingly and as per the requirements of future users. So in this article, Ali discusses three modern technology initiatives in the library namely Barcode, QR Code and RFID. It has become a very useful technology not only to serve the library users but also for the security of the library. The research also discusses the use, benefits and challenges of information technology in its entirety. Finally, a case study has been conducted on the implementation and use of this technology at MGM University affiliated colleges and their users have been satisfied.

Keywords- Technology initiatives, Modern library, Barcode, QR code, RFID, MGM University.

1.1 Introduction

In this modern age of libraries are facing tremendous changes as the modern tools and technologies have grown rapidly. Library materials are also changing quickly to the various digital formats from the traditional print formats. Information/knowledge has been creating and publishing from every sector of humankind. Document types are also not limited to books and periodicals. All types of materials for example image, painting audio, video, artifacts, three-dimensional, software, and other etc. These materials are also available with various file formats so that, one information can be used in many ways. The internet has open the door to reach anything or anybody from anywhere with just a single click. Because management this huge amount of resources becomes more challenging day by day. Implementing various software is becoming a way to maintain these resources like-automation, digitization, content management, e-resource management and much more. This software are handling as well as managing all types of housekeeping works in the li-

brary like-procuring materials, acquisition, cataloguing, circulation, controlling serials, digitizing, and archiving-retrieving, providing service to the users 'and so on. Barcode, QR Code and RFID are some technology by which store and retrieval of resources got easier and also very important for security purpose of the resources.

1.2 These are Need of Technologies

The ancient tradition of the library is to collect books and use them for the benefit of the society. However, the number of books has increased according to the usefulness of the society, but its usefulness has also increased, so that the users can get the books as soon as possible and meet their needs, so libraries are now going automated / digitalized now a days. User's having very little time to find a piece of information from an entire content. So, this technology is very important to provide quick and scheduled service and-

- Keep up-to-date with the modern technical initiatives.
- To improve access more quickly from inside the library as well as from outside the library at any time
- To improve the working efficiency
- More sharing and use of materials.
- Cost saving.
- Maintaining through software is very easy.
- Easy to reproduce.
- Can create hyperlinks for more similar materials.

1.3 Review of Literature

This research paper discusses the description of the application of Barcode system technology in libraries, its working mechanism and also the advantages and disadvantages of this technology. The researcher has tried to explore the technical aspects of Barcode technology in the library. The paper also discusses the creation of Barcode with global open-source software which is absolutely free of cost (Chanda, 2019); In this article RFID Based University Library Manage-

ment System that would allow fast transaction flow and will make it easy to handle the issue and return of books from the library without much intervention of manual book keeping which benefits by adding properties of traceability and security. The proposed system is based on RFID readers and passive RFID tags that are able to electronically store information that can be read with the help of the RFID reader. This system would be able to issue and return books via RFID tags and also calculates the corresponding fine associated with the time period of the absence of the book from the library database (Atri, 2016); The present paper discusses on concentrates on application of RFID technology in libraries, its components, benefits and role of librarian are described (Pandey and Mahajan, 2010); This chapter deals with the use of Quick Response codes, especially in Libraries. The Quick Response code technology is just like the barcode technology. The differences between barcode technology and Quick Response code technology is that barcode technology can handle the information only in horizontal direction and Quick Response code technology can handle the information in both horizontal and vertical direction. Quick Response code technology is widely used as a medium to deliver a message to end users. The Quick Response codes are mainly used by libraries for the purpose of promoting their services. Nowadays the Quick Response code technology is widely used by many libraries for providing quickly access to their resources (Parabhoi and Bhattacharjya, 2017); quick Response code usage is increasing and it is used for marketing purposes. The embedded information is readable by mobile phone (Sahu and Gonnade, 2013); quick Response codes are attached with any Print media (Kumar, and Nayak, 2014).

1.4 Objective of the Study

- To attract and make wide awareness among library users towards library resources.
-

- To Provides quick Current awareness Service.
- To save the time of the user.
- To create awareness of the advantages and disadvantages of using these technologies.
- To create awareness about the functionality of this technology.
- To create awareness about the use of this technology.

1.5 Research Method of the Study

Qualitative research methods have applied here due to this is a case study of some technology initiative through some modern software. It is also a case study of the implement applies and issues of the same technologies in a particular library. Later it detailed about the technologies, a short history, designing methods with some prescribed formats, system requirements for initiatives, its advantages and disadvantages and the initiative and implications of these technologies in Libraries, MGM University, Aurangabad.

1.6 Barcode technology

Barcode is a coding technology of Automatic Identification and Data Collection (AIDC) or Auto ID method that stores real time data. Barcode is a collection of vertical or graphical bar patterns colored in black with white spacing, generally started using in the grocery stores in the early 70'. By the development of new technologies, business organizations and industries have adopted barcode technology for collecting their information. After that, a variety of organizations has started using this zebra technology like-manufacturing, hospitality, education, travel, retail, security, healthcare etc. where the main job is repetitive. Among the above centers, the library is a perfect example for repetitive works; especially at the circulation counter, sometimes the stuff has to retype several times the same thing due to typing mistakes. Barcode is the typical solution here. It reads information 3 times faster and 0.03% errorless than a skilled

personnel.

1.6.1 Designing of barcode system

Generally two types of barcodes are there, one is the linear barcode and second one is 2-D symbology. Linear barcode is made by black vertical lines with white space. The height and width may vary but it is specified and represents fixed information. This type of barcode stores normally numerical data, and contains limited data.



Figure-1: Linear Barcode



Figure 2: Barcode with machine

1.6.2 System Requirements for Barcoding

To generate and run the barcoding system we need some hardware as well as software materials according to library perspective. This system is following.

- Computer
- Library Management Software (LMS)
- Printer
- Scanners
- Skilled staff
- Paper and pasting materials



Figure-3: Barcode scanner machine

1.6.3 Advantage of barcode

Here are some advantages of barcode

- Look at the exact date
 - Easy to do the job
-

- Almost not error
- Ease of use
- Uniform
- Improving workflow
- Improve staff Capability
- Increased customer satisfaction
- Fulfill Ranganathan's fourthlaw i.e. save the time of the reader

1.6.4 Disadvantage of barcode

There are some disadvantages too for using barcodes

- Maintaining is costly sometimes
- Not possible without skilled staff
- Systems fall down problems.
- Not possible without proper machinery



Figure-4: 2D Barcode

- Power-cut problems

1.6.5 Barcode initiative and applications in College Libraries, MGM University, Aurangabad.

A wide range of new technologies have been developed in modern libraries, including RFID, QR, and barcode technology was introduced in 2011 in the library affiliated to MGM University. This barcode method is used to exchange books in the library for book security checks. Because if someone takes it out, it is useful to understand. So the book becomes safe, no one can steal from the library. This is very important so that both the library and the book are not harmed.

1.7 Quick response (QR) code technology

QR code is the type of barcode used to hold and provide additional information. It can hold a large amount of data and can be used anywhere. QR code is much faster coding method than other barcodes. At first, it is developed in 1994 by Denso Wave Corporation, one of the Toyota Company's branch in Japan (Walsh 2009). Basically this coding system is developed for tracking of shipping, but later on, it is used from industrial assembly lines to marketing and also installed on the label, exhibits, business cards, flyers and so on in the countries like Japan, Korea, middle-east. But, this technology goes viral when Western and European countries adopted it and started using in every sector like, news, media, public announcement, Govt. activities and so on. Likewise, libraries are also using this technology so far in this present age to represent their websites, advertisements, seminars, workshops, meetings and mostly for URLs.

1.7.1 Designing of Quick response code

Quick Response codes are 2-dimensional image sensor which is worked by some programmed processor. The three squares located in three corners using a smaller square are used to maintain the size, orientation, angle of viewing etc. of quick response codes. The dots are used to represent the data by using binary digits through an error-correcting algorithm. There are two types of QR codes; One is static QR code, which is a one-time job. Once this type of code is generated then, we can't change the code again. The second one is dynamic QR codes, which is editable. We can change the information according to the change of time and need. A QR code can hold 7089 characters of numeric data, 4296 characters of alphanumeric data, 2953 character of binary data and 1817 Kanji (Chinese letter) character (Farashbandi 2014).

1.7.2 System requirements for QR code

Here we also need some hardware and software ma-

materials to run the quick response code. These are.

- A Computer
- A LAN or Network Connection
- Creating Websites
- Data
- Scanner/ Decoder
- Decoding Apps

1.7.3 Advantage of Quick response code

Here are some of the advantages of using quick response code

- It is available for free; one can create the QR code using free software
- It is very fast to access the information embedded with the code
- Easy to read the quick Response code
- The nature of quick Response code is versatility
- Can use anywhere
- Anyone can generate it

1.7.4 Disadvantage of Quick response code

There are some disadvantages too for using quick response codes

- Sometimes need internet connection
- Still users are not fully aware of this technology
- Human errors happen sometimes at the time of coding
- Codes are not working sometimes due to the compatibility of the decode

1.8 Radio-frequency identification technology (RFID)

Radio-frequency identification (RFID) is an automatic identification method, relying on storing and remotely retrieving data using devices called RFID tags or transponders. The acronym refers to small electronic devices that consist of a small chip and an antenna. The chip typically is capable of carrying 2,000 bytes of data or less. The RFID device serves the same purpose as a bar code or a magnetic strip on the

back of a credit card or ATM card; it provides a unique identifier for that object. And, just as a bar code or magnetic strip must be scanned to get the information, the RFID device must be scanned to retrieve the identifying information. In general terms, RFID is a means of identifying a person or object using a radio frequency transmission.

- 125kHz (Low Frequency),
- 13.56MHz (High Frequency)
- 800-900MHz (Ultra High Frequency).

RFID has been in existence for more than 20 years, and it has been extensively used in applications such as toll collection, access control, ticketing, heightened security concerns, supply chain automation, and a continuing emphasis on cost control within industrial systems. RFID is also used in Libraries. Various Libraries has implemented this technology (Kumar, 2008).

1.8.1 Designing of RFID

There are broadly two types of RFID system exits; active RFID and passive RFID. Both consist of a tag and a reader. An RFID tag is comprised of a microchip containing identifying information and an antenna that transmits this data wirelessly to a reader. At its most basic, the chip will contain a serialized identifier, or license plate number, that uniquely identifies that item, similar to the way many barcodes are used today.



Figure- 5: RFID management system

1.8.2 System requirements for RFID

The following hardware and software are required for RFID technology

- Tag
- Reader
- A Computer
- learning management system (LMS)

1.8.3 Advantage of RFID technology

Here are some of the advantages of RFID technology

- Nobody is required for issue/return process.
- Increases the security level.
- Setting up the system is one-time job.
- Handling is very easy.
- Maintenance is fully automated and easy.
- Can retrieve data in seconds.

1.8.4 Disadvantage of RFID technology

Some disadvantages are also there while using this technology

- It's very costly to implement as well as maintain
- If someone removes the tag then it becomes very big security problem
- Systems fall down problem.
- Less skilled staff for maintenance.
- Invalid/damage tag problem.

1.9 Conclusion

Technology is changing very fast and very fast in the modern age so today's latest technology may be obsolete tomorrow or maybe decay. So, with the advent of new technology it has become very difficult to decide whether or not to go, if so it is necessary to decide what is the best and most advanced technology for my library. Because a lot of things need to be considered before making a decision, for example, whether this technology is needed, budget permits, purchased or open source, types of users, types of resources, /

skilled staff? Available etc. But over time, computerization of the library has become very necessary. Therefore, libraries need to be developed by creating many new technologies. Even though these libraries have a huge amount of budget, the credit goes to the librarians and the decision makers of the libraries as it is also a big responsibility to use them on a large scale.

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**Best Practices in GES, N.B.Mehta
(Valwada) Science College Library and
Information Centers: A Study**

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[Abstract: This articles shows the activities and practices performed by the N.B.Mehta (Valwada) Science college library. It covers traditional best practices, ICT based library activities and services, extension activities such as Book exhibition, Orientation Programme, Book display programme, Library hours,Best library user award, counseling center regarding competitive examinations, email services and library automation in housekeeping operation in the library and general best practices of the college library.]

Keywords: ICT, SDI/CAS,OPAC,WebOPAC

1. Introduction

In the present age of knowledge explosion the libraries and knowledge resource center play not just a crucial learning-support the library occupies a prominent position, and it's a very important and integral a part of the teaching programme. The aim of college education and college libraries in inter-related. College library extends opportunities for

self-education to the deserving and enthusiastic students with none distinction. College library stimulates the scholars to get, evaluate and recognize knowledge and to familiarize themselves with the trends of information for further education and learning new disciplines. Best practice is also innovative and be a philosophy, policy, strategy, program, process or practice that solve a controversy or create new opportunities and positively impact on organizations. Institutional excellence is that the aggregate of the simplest practices followed in several areas of institutional activities.¹

Definition & Meaning Oxford Advanced Learners Dictionary "Best practices as a high quality of high standard, excellence, highly improved outstanding par excellence service. It means way of doing something that's usual or expected way particularly organization or situation, guidelines permanently practices. During this process of developing best practices we taken action instead of good ideas & we improve our skills."²

Definition ODLIS (Online Dictionary of Library and knowledge Science) describes best practices as follows: "In the appliance of theory to real-life situations, procedures that, when properly applied, consistently yield superior results and are therefore used as reference points in evaluating the effectiveness of other methods of accomplishing the identical task.

2. GES,N.B. Mehta(Valwada) Science College, Bordi

The Government of Maharashtra and the University of Mumbai granted permission to the Gokhale Education Society, Nashik to start a single faculty Science College at Bordi from the academic year 1994-95. The College started with one division of F.Y.B.Sc and became a fully fledged degree college of Science in subsequent years.

The college has created facilities for the urban as well as rural and Adivasi students for higher education in science and has tried to make them self-sufficient and employable in the industrial sectors. N.B.Mehta(Valwada)Science Col-

lege is permanently affiliated to the University of Mumbai and accredited by NAAC with B Grade. We are the proud recipients of the BEST COLLEGE AWARD (Rural) 2010-11 from University of Mumbai. The College is also ISO9001:2015 certified.

The college and the library has its own website and has not android apps. There are four library staff working in the library with including the librarian. The library has partially automated and library automation was started in the year 2015. N.B. Mehta college library is using SOUL 2.0 till June 2022 and from July 2022 the SOUL 3.0 library software. It is multiuser software and library staff is happy with the software. Library has not given any contract for maintenance to outsource agency. It is using windows 2010 operating system.

Library automation enables to large data can be handled with ease and accuracy operates at a great speed and promptness. Automation of library gives high rate and better quality in performance, It helps to the library for labor saving and saves the lot of time both user and staff. It is easy and functioning and avoid the duplication of library online work. With help of library automation greater manipulation is possible.

N.B. Mehta (Valwada) Science College library automation enables for Cataloguing, Circulation, and Information retrieval. Services, SDI/CAS service. Library automation provides various types of library services like CAS and SDI Indexing and abstracting Services, content pages service, photocopy service, E-information service, and Internet search facility, Inter-library loan, CD-ROM search, OPAC and Web-OPAC search facility provided by N.B. Mehta Science College library. Library has adequate professional manpower in the handling of library automation and Librarian has taken the basic and advanced library software training of software

SOUL 2.0 networking application.**3. Collection Development of N.B. Mehta (Valwada) Science College Library**

GES, N.B.Mehta (Valwada) Science College Library the main aim of the collection development is to make available all types of important reading material, i.e. books, reference books, text books, reports, patents, standards, theses, serials, journals, non book materials resources etc to support learning, teaching and research pursuits of the readers of the college. N.B.Mehta college library has following collection till the academic year 2022³.

Table No. 1

Sr. No.	Types of Reading Material	Number of reading material
01	Books	20715
02	Print Journals	25
03	Book Bank Scheme Books	2665
04	CD & DVD's	682
05	Atlases	06
06	Globe	02
07	Newspapers	10
08	N-LIST E-journals	6000+
09	N-LIST E-Books	1,64300+
10	N-LIST E-Books (Through NDL)	60,0000+

4. Following are the four broad area of the library for best practices

In order to be able to provide best services to the users, the library adopts processes and practices that are not only considered to be the best but are comparable with the best in the market. The best practices are mainly classified under the following broad areas are:

A. Traditional Best Practices**i) Book Exhibition**

N.B. Mehta (Valwada) Science College Library arranging book exhibition Programme on different occasions (i.e. 'Marathi Rajbhasha Din' in account of Birth anniversary of V.V. Shirvalkar (Kusumagraj) on 27 February and 'Vachan Prerna Din' birth anniversary of Dr. AP.J. Abdul Kalam etc

every year, display rare books, newly added books or books of particular subject which are available within the library. This can increased awareness among readers about knowledge the gathering.

ii) Orientation Programme

Orientation is conducted every year for the first year students one of the best practices to create awareness among the students about the library resources, services, ICT based library services, to inculcate good reading habits and activities for maximum utilization of the library, exposing the students to its various library services.

iii) New Arrivals

Putting the list of newly available books on notice board and social media like Facebook, WhatsApp status, faculty members, student's groups and library website, it will make the reader aware about the new reading material so that accordingly he could demand for those new books & get it.

iv) Book Reviews

User should have asked to read all the book and provides his review on book. At the tip Librarian should collect it, examine it & displays it on board under the name of reviewer.

v) Readers Club

N.B. Mehta college Library gives its facility to outside reader and former students the campus with the permission of the Principal. Library also establish a reader club. This club maintain good relation between library & its users.

vi) Training to use E-Resources

Training programmes should be conduct for student, teacher every year in the beginning of the first term according their need. In this programme, how to find out library books by using Library OPAC, National Digital Library of India and how to take free membership. The INFLIBNET facilities

and how to use and search the N-LIST free online journals, E-Books link to various useful websites etc. training should be given so that library resources, services use more effectively & efficiently.

vii) Best Library User Award

Every Year collegelibrary declare best user award to the under graduate, post graduate students and faculty members. This practice should encourage students/ staff to make maximum use of library resources & services.

viii) Carrier Guidance Cell

N.B. Mehta (V) College formed Carrier Guidance Cell, 'Carrier Katta' UPSC and MPSC examination. the scholars searching information regarding their competitive exam books, Magazine. during this context Library and Librarian should play a crucial role to unravel their problems. The library have good collection of comparative examinations.

ix) Library Hour

N.B. Mehta College Library started library hour for students. In this period students visit the library for spending an hour in the library for reading materials. By keeping an hour in their students spend an hour in the library which brings them closer to the reading materials, indirectly it helps to inculcate reading habits among the students.

B. ICT based Best Practices

i) Computerized Library with Library Management Software

N.B. Mehta College Library use SOUL.2.0 library management software since 2015 and it also upgrade in June 2022 to SOUL.3.0. This Library Management software enables too fast housekeeping operation of the library.

ii) Library Webpage

College library also have their own website. It provides the information regarding Library resources, Print and Non-Print (E-Journal and E-Books), Provided links to other digital library portals, free e-journals/e-books links, various

competitive exams, new arrivals and also library activities information, a library web page or Universal Resource Locator (URL) facilitates single window access to various web enabled library services.

iii) Online Public Access Catalogue (OPAC) and Web OPAC

N.B. Mehta College Library provides the computer form of library catalogue to access of reading materials in the library. It is an online database of materials held. It is a computerized library catalogue available to the students and staff. A Web OPAC interfaces, which uses the globe Wide Web protocol to act as an OPAC of the faculty library. It's available for the general public.

iv) Electronic Document Delivery Services

Systems which employ electronic technology for receipt of request and supply of documents are known as Electronic Document Delivery Systems (EDDS). College library provides old Question papers, photograms of the required topics, free e-book and e-journals, in JPEG, PDF form to the students and staff members on their demand through e-mail and social media.

v) CAS & SDI Services

Dissemination of knowledge that may keep it users well-informed and up-to-date in their fields of basic interest likewise as in related subjects is named Current Awareness Service like new arrivals of books, journals, press clipping, research articles in related subject and their interest of subject. Selective Dissemination of knowledge refers to tools and resources accustomed keep a user informed of latest resources on specified topics.

vi) Electronic Mail (E-mail)

Email correspondence (E-mail) because the transmission of messages on the net. It's one in all the foremost commonly used features over communications networks which will contain text, files, images, or other attachments. It to

enables to the library to provided 24x7 information dissemination to the user.

vii) Electronic Resources

Electronic Resources Electronic resources form one in all many formats that the Library collects to support its universal collections. Electronic resources include, web sites, online databases, e-journals, e-books, and physical carrier's altogether formats, whether free or fee-based, required to support research within the subject covered. N.B.Mehta College Library made available resources through N-LIST (National Library and Information Services Information Services for Scholarly Content) to students and staff members.

viii) Institutional Repository

An Institutional Repository is a corporation based set of services which the organization offers to the members of its community for the management and dissemination of digital materials created by the institution and its community members. College library made available document like Question paper, Syllabus, Research papers, Notes, carrier guidance etc will be made available for user community.

ix) Online Full Text Service

College library take membership of N-LIST (National Library and Information Services Information Services for Scholarly Content) through N-LIST the user can access number of online full text e-journals, E-books, e-theses and dissertation, research papers, databases etc. are available. It can be online viewing, printing or downloading.

C. Library Extension Services

i) External Membership Facility

N.B.Mehta college library provide services to the society, ex-students, outside user with permission of the Principal for the limited period, this facility gives free of cost to members.

ii) Inter Library Loan (ILL)

ILL facility given to the users demand. With the collaboration of GSP, Art, Commerce college library, Talasari. In this service a user of one library can borrow books or receive photocopies of documents that are owned by another library. The library staff identifies the users demand and college library fulfill the demand of the user through IIL.⁴

iii) Document Delivery Service (DDS)

DDS delivers copies of journal articles and book chapters owned by users to request these items and have them delivered electronically to their desktop. For many campus users this is a free service.

iv). Newspaper clipping services

News paper service provided to the user, subject related, society related news, employment, competitive exam etc. service provided by the college library.

v) Feedback

Every year college library collect feedback from the last year students and PG students and staff member. The user suggests various ideas for improvement of the library collections and services.

vi) Library Help Desk

Guide the users about Library resources and their locations. How to search print resources and e-resources?

D. General Best Practices

- i) Regular Library Advisory Committee Meeting for allocation of library budget and book selection.
 - ii) Binding of periodical, journals Volumes, books.
 - iii) Every year the entire students 'Amaranth' college magazine issued.
 - iv) Library Information is provided on College and library Websites.
 - v) College provided intercom facility for communication among various departments.
 - vi) Preparing books issuing cards, Pasting of barcode, spine
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label and stamping, data entry of the books in the software.

vii) Question Paper sets of previous examinations to students and staff members on demand

viii) Library Vision, Mission, Rules and Regulation charts displayed on the wall.

ix) Displayed N-LIST e resources charts.

x) Use of pesticides for keeping away book worm & damage of books.

xi) Keeping the library premises neat & clean

5. Conclusion

The best practices of the college library is the daily activities performed by the library staff, it includes book acquisition, cataloguing, circulation, library services provided to the students and staff members, Library events, provided library resources which is available in print and non-print form. In the ICT age the college library should increase e-resources like e-books, e-journals, databases, and also provide multimedia services to the users.

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ICT enabled tools for Effective use of E-resources

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Abstract:

The research article highlights ICT enabled tools for effective use of E-resources. It covers six ICT enabled tools and its importance for enhancing effective use of E-resources which is Blog, E-mail, WhatsApp, QR Code, Website and Mobile App. The article enlightens use of these ICT enabled tools to provide effective use of E-resources and Services.

Introduction:

Today's era is known as Information Communication Technology (ICT) era. Everyone is having information immediately or in a one click. Therefore, the information professionals has working to provide maximum information in minimum time. Now a day's ICT enable tools helps to information

professionals for enhancing effective use of E-resources and services to the users. These tools help to teachers and librarians for acquiring the information, to process and to disseminate the information. Now a day's, a new concept coined which is 'User Acquisition' means borrow the users on one platform. Therefore, the ICT enabled tools plays marketing role to information creators for user acquisition at one platform towards sharing the information. For that purpose, this article shows the importance of some ICT enabled tools for enhancing effective use of E-resources and E-services.

ICT enables Tools

1. Blog

A blog, short for weblog, is a frequently updated web page used for personal commentary or business content. Blogs are often interactive and include sections at the bottom of individual blog posts where readers can leave comments.

(<https://www.techtarget.com/whatis/definition/weblog> accessed Dt. 10/10/2022)

2. E-mail

E-mail, in full **electronic mail**, messages transmitted and received by digital computers through a network. An e-mail system allows computer users on a network to send text, graphics, sounds, and animated images to other users.

(<https://www.britannica.com/technology/e-mail> accessed Dt. 08/10/2022)

3. WhatsApp

WhatsApp is free to download messenger app for Smartphone. WhatsApp uses the internet to send messages, images, audio or video.

(<https://www.webwise.ie/parents/explainer-whatsapp/> accessed Dt. 10/10/2022)

4. QR Code

A QR code (short for "quick response" code) is a type

of barcode that contains a matrix of dots. It can be scanned using a QR scanner or a smartphone with built-in camera. Once scanned, software on the device converts the dots within the code into numbers or a string of characters.

(https://techterms.com/definition/qr_code accessed Dt. 10/10/2022)

5. Website

A website (also written as a web site) is a collection of web pages and related content that is identified by a common domain name and published on at least one web server.

(<https://en.wikipedia.org/wiki/Website> accessed Dt. 10/10/2022)

6. Mobile App

A mobile application or app is a computer programme or software application designed to run on a mobile device such as a phone, tablet, or watch.

(https://en.wikipedia.org/wiki/Mobile_app accessed Dt. 08/10/2022)

ICT enabled tools for Effective use of E-resources



Blog:

Blogs are playing vital role after the COVID-19 Pandemic for enhancing E-resources to the all academic stakeholders. The information's like text, audio, pdf files, photos, video, and reference links are shared through the blogs. So the blog is most effective ICT tools for enhancing E-resources and Services to the all academic stakeholders.

The teachers can create blogs on various topics, particular concept, assignment, Questionnaires and its related materials. Also we can easily share E-resources such as E-book, E-Journals, E-resources and particular link of E-resources. It gives opportunity to the students to communicate with teachers regarding their doubts, queries and related questions through the comments. Blogging enhances the skill of the students about analytical and critical thinking.

Librarians share the information regarding E-resources, Databases to the all the academic stakeholders. The information professionals to enhance E-services like Current Awareness Services, Selective Disseminate Services, Literature Search Services, Reference Services, and Online Information Services through the library blogs. Blogs also support to users towards effective use of E-resources.

E-mail:

Electronic mail is popular tool to communicate the information to each others. The information creators can communicate text, pdf files, photos, videos, notes immediately to the students and users. The users may give reply regarding received information. Today everyone have their email ID for the communication purpose. It provides efficient and effective ways to transmit all kinds of electronic data.

WhatsApp:

WhatsApp mobile app is very popular all over the world. It is widely used to disseminate the information to others speedily. WhatsApp allows you to send a diversity of information such as text, photos, videos, documents, and location, as well as voice messages and video calls. The informational professionals use WhatsApp for enhancing user discussion forum, reminders and notifications for documents, news and events, reference services. WhatsApp is most powerful tool for transmit the information immediately. So WhatsApp plays an important role for enhancing use of E-

resources.

QR Codes:

An acronym of QR code is 'Quick Response' code. It is a black and white, square-shaped image that provides access to more information quickly from their devices. Students and User can scan the QR codes with their android mobiles to learn more about a product or service. QR codes can easily store data of large sizes, google from, text, and URL links. The significant feature of QR Code is easy to scan through the smart phones. Now a day's, QR code is most effective tool in teaching, learning and evaluation method. Teachers can easily share information, notes, assignments and other useful link immediately to the students in paperless manner.

For the librarians, QR code is one of the boon for the librarians to enhance library resources, E-resources and services. QR code helps to librarians for enhancing use of E-resources like QR Code of N-List Consortia, NDLI (National Digital Library of India), INFLIBNET, OER's (Online Educational Resources), Web OPAC, Library Blog, Digital Newspaper Clipping, Question Papers, Subscribed Databases, Library Rules and Regulations, Library Portal etc.

It also support to provide effective services to the users such as QR Code of Library Attendance, Requisition Form, Feedback Form, Current Awareness Service, Selective Disseminative Service, Indexing & Abstracting etc.

Websites:

A website provides a quick and easy way of communicating information between buyers and sellers. Academic website is nothing but a medium to communicate with students or users and to provide them with information and resources. One of the major advantages of having a website is that it is accessible to anyone, anywhere, anytime. Academic Website Create a portfolio that shows how well you are doing in academic excellence, institutional vision and missions,

research, academic events activities etc. Also it helps to enhance the E-resources in different portal like Sharing Database link, Web OPAC, Blog, Newspaper clipping, link of ETD's (Electronic Thesis and Dissertation), Link of free E-resources, Events and activities, Photograph, College News, link of newspapers etc. Every institution should create their own institution repository and it's put on college website. It helps to the students and users for easy to access in anywhere and any-time.

App of E-resources:

Mobile app is easy to access on smart phones. Therefore, most of the publisher has made their mobile apps for sharing the information. Today we see the mobile app on E-resources such as, NDLI (National Digital Library of India) , Marathi 'Vishwakosh', Dictionaries, KNIMBUS, DDC, Online Databases, OER's etc. This type of Mobile apps facilitated to read e-book, e-journals and articles. Many e-resources have sites are specifically optimized for mobile devices. The site will open automatically when entering the page.

Conclusion:

The article has quoted and elaborated six ICT enabled tools with its importance for enhancing effective use of E-resources. It is very familiar amongst the all academic stakeholders. It helps to the academic stakeholders to understand the ICT enabled tools for marketing and enhancing the use of E-resources.





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सार : या संशोधन पेपरमध्ये क्यू. आर. कोड तंत्रज्ञानाच्या वापर संदर्भात चर्चा केलेली आहे. ग्रंथालय सेवांमध्ये तंत्रज्ञानाच्या प्रभावावर लक्ष केंद्रीत करणे, वापरकर्त्यांना नवीन तंत्रज्ञान वापरण्याकरीता आकर्षित करून त्यांच्याशी मैत्रीपुर्वक सेवा पुरविणे. पारंपारीक पद्धत बदलवून आधुनिक तंत्रज्ञानाचा स्विकार करून क्विक् रिस्पॉन्स् कोड उपयोगात आणून ग्रंथालयात हे तंत्रज्ञान वापरण्याकरीता जलद प्रतीसाद कोड तयार करावे लागतात व विद्यार्थ्यांना द्यावे लागतात. विद्यार्थ्याकरीता ते कसे उपयुक्त आहेत या विषयी त्यांना मार्गदर्शन केले जाते. क्यू. आर. कोडचा वापर सर्वच क्षेत्रात होत आहे. या पेपरमध्ये क्यू. आर. कोड तयार करण्याची प्रक्रिया दिलेली आहे. क्यू. आर. कोडचा वापर, उपयोग, फायदे, मर्यादा, आवश्यकता या विषयी सविस्तर माहिती देण्याचा प्रयत्न केलेला आहे. शोधसंज्ञा : क्यू. आर. कोड, क्विक् रिस्पॉन्स् कोड रिडर, क्विक् रिस्पॉन्स् कोड जनरेटर्स, बारकोड तंत्रज्ञान.

प्रस्तावना : आधुनिक युगात तंत्रज्ञानाच्या आगमनामुळे सर्वच क्षेत्रात क्रांती आलेली आहे. माहिती व संप्रेषण तंत्रज्ञानाचा ग्रंथालय क्षेत्रात देखिल प्रभाव जाणवतो. डिजीटल युगात इलेक्ट्रॉनिक संसाधनांची वाढती मागणी पहाता क्विक् रिस्पॉन्स् कोड या साधनाने

पुस्तक व्यावसायात आपले स्थान पक्के केलेले आहे. त्यासाठी आपणास क्विक् रिसर्प्स कोडची गरज, कार्यप्रणाली आणि आजचे तांत्रिक जग समजून घेणे आवश्यक आहे. या आधुनिक युगामध्ये आय फोन आणि स्मार्ट फोन प्रत्येकाच्या जीवनाचा एक अविभाज्य भाग बनलेला आहे.

क्यू. आर. कोड तंत्रज्ञान हे बारकोड तंत्रज्ञान सारखे आहे. बारकोड तंत्रज्ञान व क्यू. आर. कोड तंत्रज्ञान या दोन्ही तंत्रज्ञानातील मुख्य फरक म्हणजे बारकोड तंत्रज्ञान हे फक्त आडव्या दिशेने माहिती हाताळू शकते व क्यू. आर. कोड तंत्रज्ञान हे आडव्या दिशेने आणि अनुलंब दिशेने अश्या दोन्ही दिशेने माहिती हाताळू शकते. संदेश देण्यासाठी क्यू. आर. कोड तंत्रज्ञानाचा विस्तृत प्रमाणात शेवटच्या उपभोक्त्यापर्यंत वापर होतो. क्यू. आर. कोड तंत्रज्ञान हे मुख्यतः ग्रंथालयात ग्रंथालयात पुरविल्या जाणाऱ्या सेवांची जाहीरात करण्यासाठी होत असतो. आजच्या या आधुनिक काळात क्यू. आर. कोड तंत्रज्ञान हे मुख्यतः त्यांच्या संसाधनात त्वरीत प्रवेश मिळविण्यासाठी उपयोग होत असतो. क्विक् रिसर्प्स कोड एक लहान चौरस आहे हा चौरस काळा आणि पांढरा असतो. त्यात उपयुक्त माहिती समाविष्ट केलेली असते व ही माहिती ग्राहकांसाठी उपयुक्त असते.

शैक्षणिक ग्रंथालय : शैक्षणिक ग्रंथालयात उपयोग कर्त्यांची संख्या खुप मोठी असते. ग्रंथालयाचा जास्तीत जास्त वापर होतो. ग्रंथालयात कर्मचारी कमी असतात. अश्यावेळी ग्रंथालयाने आधुनिक तंत्रज्ञानाचा स्विकार करून ग्रंथालयात त्याचा वापर केल्यास उपयोग कर्त्यांना कमीत कमी वेळात जास्तीत जास्त वाचकांना सेवा देता येते व वाचकांचा व ग्रंथालयातील सेवाकांचा वेळ वाचविण्यासाठी तंत्रज्ञानाची चांगल्या प्रकारे मदत होत असते. आजच्या या डिजीटल युगामध्ये वापरकर्ते तंत्रज्ञानाच्या संपर्कात आहेत. ते विविध प्रकारची माहिती शोधण्यासाठी तंत्रज्ञानाचा वापर करत असतात. माहिती मिळविण्यासाठी तंत्रज्ञानाचा वापर कश्या पध्दतीने करतात हे त्यांना योग्य प्रकारे माहिती आहे. भारतातील ग्रंथालयाच्या दृष्टीने वापरकर्ते स्वतःचे स्मार्ट डिव्हाईसेस हाताळतात हे खुप महत्वाचे असून त्यांच्या दृष्टीने खुप मोठी संधी आहे. बहुतेक महाविद्यालये ग्रंथालय उपभोक्त्यांना डिजीटल सेवा पुरविण्यासाठी खुप प्रयत्नशिल आहेत व ग्रंथालयाकरीता आधुनिक यंत्र उपलब्ध करण्यासाठी ग्रंथपालांना खुप प्रयत्न करावे लागतात. वाचकांना वाचन साहित्याचा क्विक् रिसर्प्स कोड दिल्यास अनेक वाचक त्या कोडच्या सहाय्याने मोबाईलवर वाचन साहित्य वाचू शकतात. शैक्षणिक ग्रंथालयांच्या व वाचकांच्या दृष्टीने क्विक् रिसर्प्स कोडच्या सहाय्याने दिल्या जाणाऱ्या सेवा खुप महत्वाच्या आहेत. ई-जर्नल, ई-वृत्तपत्र,

अभ्यासक्रम, प्रश्नबँक आणि डिजीटल भांडाराच्या वेबसाईट वर क्यू. आर. कोडच्या सहाय्याने ग्रंथालय सेवा दिल्या जातात.

क्यू. आर. कोड : क्यू. आर. कोड ला क्विक् रिस्पॉन्स कोड असे म्हणतात. क्विक् रिस्पॉन्स कोड हे एक बारकोड तंत्रज्ञान आहे व वापर कर्त्यास मुक्त स्वरूपात उपलब्ध आहे. क्विक् रिस्पॉन्स कोड दोन पध्दतीने दर्शविला जातो आणि क्विक् रिस्पॉन्स कोड रिडर सॉफ्टवेअरच्या सहाय्याने सोप्या पध्दतीने वाचता येतो. मोबाईल फोन सारख्या साधनांमध्ये क्विक् रिस्पॉन्स कोड रिडरच्या वापराची सुविधा उपलब्ध आहे. समाजात वावरत असतांना अनेक ठिकाणी आपणास क्विक् रिस्पॉन्स कोडचा वापर होतांना दिसतो. क्विक् रिस्पॉन्स कोड हा अनेक ठिकाणी पहावयास मिळतो. उदा. लाईट बिल, आधार कार्ड, ब्रँडेड उत्पादने, विविध अन्न उत्पादनांच्या रंपरवर, औषधी, पुस्तके, मासिके, वृत्तपत्रे, ऑनलाईन पेमेटंसाठी पेटीएमसारख्या ऍपवर, कॅशलेस शॉपिंग, किरकोळ स्टोअर्स, त्याचप्रमाणे आता क्विक् रिस्पॉन्स कोडचा वापर आता ग्रंथालयात देखिल होत आहे. परंतु ग्रंथालयात मात्र क्विक् रिस्पॉन्स कोडची कार्ये वेगळी आहेत. क्विक् रिस्पॉन्स कोडद्वारे अनेक प्रकारची माहिती साठविता येते. या माहिती मध्ये वेबसाईटची लिंक, लिखित (टेक्स्) स्वरूपाची माहिती, पी.डी.एफ. फाईल्स इत्यादींचा समावेश होतो. ग्रंथालयामध्ये क्विक् रिस्पॉन्स कोड द्वारे प्रश्नपत्रिका, नवीन पुस्तकांची यादी, वेबसाईटस्, ई-संसादने अशी विविध प्रकारची माहिती उपलब्ध करून दिली जाते. या माहितीला मोबाईलच्या सहाय्याने सहज हाताळता येते. यासाठी मोबाईलमध्ये क्विक् रिस्पॉन्स कोड स्कॅनर असणे आवश्यक असते. क्विक् रिस्पॉन्स कोड स्कॅनर इंटरनेट किंवा प्ले स्टोअर वरून डाउनलोड करता येते. शैक्षणिक ग्रंथालयातील क्विक् रिस्पॉन्स कोड वापराचा मुख्य उद्देश म्हणजे ग्रंथालयाकडून दिल्या जाणाऱ्या सेवांचा प्रचार प्रसार करण्यासाठी व ग्रंथालय सेवा देण्यासाठी हे तंत्रज्ञान उपयोगी आहे.

जपानमध्ये वाहन व्यावसायामध्ये लहान लहान वस्तूंच्या ओळखसाठी १९९४ मध्ये डेन्सो वेव यांनी या प्रणालीचा शोध लावला होता. याचा वापर आता आधुनिक तंत्रज्ञानाच्या मोबाईल जगतामध्ये वेबसाईट, ई-मेल, मोबाईल नंबर, व्हिजिटींग कार्डची माहिती साठविण्यासाठी केला जावू लागला आहे. क्विक् रिस्पॉन्स कोड हे एक सांकेतिक चिन्ह असून यामध्ये अंक, अक्षरे, कांजी कोड वापरलेला असतो. कांजी ही एक जपानी भाषा आहे. क्विक् रिस्पॉन्स कोड स्टॅटीक व डायनॅमिक अश्या दोन प्रकारचे असतात. स्टॅटीक कोड मध्ये बदल करता येत नाही व डायनॅमिक कोड मध्ये बदल करता येतो. क्विक् रिस्पॉन्स कोडची प्रिंट घेता येते व हव्या त्या ठिकाणी त्याचा वापर करता येतो.

मोबाईलमध्ये क्विक् रिस्पॉन्स कोड रीडर ॲप्लीकेशन डाउनलोड केले असता कोणत्याही क्विक् रिस्पॉन्स कोडचा फोटो मोबाईलच्या सहाय्याने काढला असता त्या कोड मध्ये साठविलेली माहिती मोबाईलमध्ये आपोआप सेव केली जावू शकते म्हणजेच तुम्हाला त्या व्यक्ती किंवा कंपनीची माहिती जसे की, मोबाईल नंबर, ई-मेल, वेबसाईट इत्यादी टाईप करून किंवा लिहून ठेवण्याची गरज नाही. फक्त फोटो काढला की संपूर्ण माहिती तुमच्या मोबाईलवर सेव होत असते.

पांढ-या रंगाच्या पार्श्वभूमीवर काळ्या रंगाच्या चौकटी असलेला चौकणी आकाराचा कोड वेगवेगळ्या उत्पादनावर, जाहिरातीवर, पुस्तकावर, वर्तमान पेपरवर, नोटीसबोर्ड, आधारकार्ड, मेडिसीन इ. ठिकाणी पहात असतो. क्विक् रिस्पॉन्स कोडमध्ये अक्षरे व अंक विशिष्ट पद्धतीने साठविलेली असतात. हल्ली प्रत्येक क्षेत्रात क्विक् रिस्पॉन्स कोडचा उपयोग होत असतो. क्विक् रिस्पॉन्स कोड डिकोड करता येतो म्हणजेच वाचता येतो. महाराष्ट्र शासनाच्या क्रमिक पुस्तकांवर देखिल क्विक् रिस्पॉन्स कोड आलेला आहे. सोलापूर जिल्ह्यातील रंजित दिसळे या शिक्षकाने कल्पकतेने वापरलेला आहे. मायक्रोसॉफ्ट कंपनीने देखिल याची दखल घेतलेली आहे.

भारताचे पंतप्रधान मा. नरेद्रंजी मोदी यांनी डिजीटल इंडियाची घोषणा केली त्यामुळे सर्वच क्षेत्रात मोबाईलचा वापर वाढलेला आहे. याचा वापर दैनंदिन व्यावहार आणि शिक्षण क्षेत्रात मोठ्या प्रमाणात केला जात आहे. ज्या घटकाविषयी माहिती सांगायची आहे तो घटक क्विक् रिस्पॉन्स कोडमध्ये समाविष्ट केलेला असतो. उदा. व्हिडिओ, इमेज, नंबर, माहिती, पीडीएफ किंवा इतर माहिती क्विक् रिस्पॉन्स कोडमध्ये समाविष्ट केलेली असते. डिजीटल इंडिया या मोहीमेत क्विक् रिस्पॉन्स कोड नेट बँकींग, इंटरनेट, मार्केटमधिल अनेक वस्तूवर वापरला जातो.

क्विक् रिस्पॉन्स कोड कसा आणि कुठे तयार करता येवू शकतो? : इंटरनेटवर अनेक वेबसाईट मोफत क्विक् रिस्पॉन्स कोड बनविण्याची सेवा देतात. ज्यासाठी कुठल्याही प्रकारचे शुल्क द्यावे लागत नाही. अनेक वेबसाईट रंगित किंवा तुमच्या कंपनीच्या लोगोसह क्विक् रिस्पॉन्स कोड बनविण्याची सुविधा देतात.

क्विक् रिस्पॉन्स कोड जनरेटर्स : ऑनलाईन विनामुल्य क्विक् रिस्पॉन्स कोड जनरेट करण्यासाठी भरपूर वेबसाईट्स आहेत. काही महत्वाच्या वेबसाईट्स खालील प्रमाणे सांगता येतील त्यांचा वापर करून क्विक् रिस्पॉन्स कोड जनरेट करता येतो.

१. <http://qrcode.kaywa.com/>

२. <http://www.the-qr-code-generator.com/>

३. <http://goqr.me/>

४. www.qr-codegenerator.com

५. www.unitag.io/qr-code

६. <http://www.qrstuff.com/>

७. <http://www.beetagg.com/>

८. www.qr-code-monkey.com

क्विक रिस्पोन्स कोड रीडर : क्विक रिस्पोन्स कोड रीडर भरपूर असून काही क्विक रिस्पोन्स कोड रीडर खालील प्रमाणे आहेत.

१. KAYWA Reader - <http://reader.kaywa.com/>

२. I-nigma Reader - <http://www.i-nigma.mobi/>

३. Bee Tagg - <http://get.beetagg.com/>

४. ScanLife Barcode Reader

५. QuickMark QR Code Reader

६. QR Droid

७. Barcode Scanner

क्विक रिस्पोन्स कोड ॲप्लीकेशन कोणते वापरावे? : ॲन्ड्रॉईड मोबाईल वापरणारे युजर्स गुगल प्लेस्टोर वरून क्विक रिस्पोन्स कोड रीडर ॲप्लीकेशन डाउनलोड करू शकतात. ॲपल मोबाईल वापरणारे युजर्स आइट्यून्स वरून क्विक रिस्पोन्स कोड रीडर ॲप्लीकेशन डाउनलोड करू शकतात. नोकीया मोबाईल वापरणारे युजर्स नोकीया स्टोर्स (सध्याचे मायक्रोसॉफ्ट) वरून क्विक रिस्पोन्स कोड रीडर ॲप्लीकेशन डाउनलोड करू शकतात.

डेटा पुर्नसंचयीत : क्विक रिस्पोन्स कोड किंवा बारकोड हे काही कालावधिनंतर हाताळतांना खराब होवू शकतात. अश्यावेळी बारकोड स्कॅन करण्यास सक्षम नसतील परंतु क्विक रिस्पोन्स कोड स्कॅन केला जावू शकतो. क्विक रिस्पोन्स कोडमध्ये सुमारे ३०% कोड शब्दांचे नुकसान झाल्यास ते पुर्नसंचयीत केले जावू शकतात. बारकोड योग्य स्थितीत स्कॅन करणे आवश्यक आहे परंतु क्विक रिस्पोन्स कोड कोणत्याही स्थितीतून स्कॅन केला जावू शकतो. हे कोडच्या तीन कोपऱ्यात स्थित तीन स्थितीचा शोध नमुण्यांशी संलग्नित आहे. हे क्विक रिस्पोन्स कोडचे वैशिष्ट आहे.

ग्रंथालयात क्विक् रिसपॉन्स कोड आधारित सेवा : ग्रंथालये नेहमीच वापर कर्त्यांना उत्तम सेवा देत असतांना नवनवीन गोष्टींचा प्रयोग करत अमंलात आनत असतात. विद्यार्थ्यांना दिल्या जाणाऱ्या सेवांचा जास्त लाभ मिळावा, त्यांना माहिती मिळावी, त्याकरीता संभाव्य मार्गाने माहितीचा प्रचार करणे, वाचकांचे अंतीम ध्येय साध्य होण्यासाठी क्विक् रिसपॉन्स कोडच्या सहाय्याने उपयोग कर्त्यांसाठी विविध सेवा प्रदान केल्या जावू शकतात. उपयोगकर्ते क्विक् रिसपॉन्स कोड लिंक वापरून ग्रंथालय वेबसाईटवर प्रवेश मिळवू शकतात. ग्रंथालयाने नवीन खरेदी केलेल्या पुस्तकांची Abstract सह माहिती मिळवू शकतात. क्विक् रिसपॉन्स कोड लिंक वरून वेब ओपॅक मधिल माहिती एक्सेस करू शकतात. क्विक् रिसपॉन्स कोड लिंक वरून ग्रंथालयाचा नकाशा मिळवणे. क्विक् रिसपॉन्स कोड लिंक वरून ग्रंथ संग्रहाचे मार्गदर्शन मिळविता येते. उपयोग कर्त्यांसाठी महत्वाच्या वेबसाईट पुरविणे. ग्रंथालयाचे नियम व कायदे या संदर्भात माहिती मिळत असते. कॉलेज मॅगझिन लिंक करता येते. ई-न्युज पेपर, ई-जर्नल्स, ई-मॅगझिन लिंक करणे. शैक्षणिक ऑडिओ, व्हिडिओ साहित्य पुरविणे.

क्विक् रिसपॉन्स कोडचा अध्ययन / अध्यापन करतांना उपयोग :

विद्यार्थ्यांना तंत्रज्ञानाचे ज्ञान होते. एखादी मोठी माहिती कोड स्वरूपात साठविता येते. अध्ययन, अनुभवयुक्त व्हिडिओ क्लिप लिंक कोड स्वरूपात साठविता येते. मोठ्यात मोठी माहितीचे अध्ययन अनुभव देता येतात.

क्विक् रिसपॉन्स कोड चे फायदे :

क्विक् रिसपॉन्स कोड हे विनामुल्य उपलब्ध आहेत. सॉफ्टवेअर वापरून क्विक् रिसपॉन्स कोड तयार करता येतात. कोडसह समाविष्ट केलेल्या माहितीवर प्रवेश करणे खुप जलद आणि सोपे आहे. क्विक् रिसपॉन्स कोड हे वाचण्यास खुप सोपे आहेत. विनामुल्य उपलब्ध असून अनेक प्रकारच्या माध्यमाच्या सहाय्याने वापरण्यास सोपे आहेत. क्विक् रिसपॉन्स कोड मुख्य फायदा त्याचा अष्टपैलूपणा आहे. क्विक् रिसपॉन्स कोड प्रत्येक गोष्टीसाठी वापरला जावू शकतो. ग्राहक आणि व्यावसायीकांसाठी ते फायदेशीर आहेत.

लिखित कोडची आवश्यकता नाही.

वापरकर्त्यांना सुधारीत माहिती थेट आणि सुलभतेने वितरीत करण्याचा मजेदार आणि प्रभावी मार्ग.

क्विक रिस्पॉन्स कोड कितीही वेळा स्कॅन केला जातो व कितीही वेळा ट्रॅक करू शकतात.

क्विक रिस्पॉन्स कोडची मर्यादा :

वापरकर्त्यांमध्ये क्विक रिस्पॉन्स कोडचा परीचय नाही.

ग्रंथालयामध्ये आधुनिक साधने व तंत्रज्ञानाचा वापर कमी.

ग्रंथालय सेवांमधील उपयोजन, विनंती, एखादी गोष्ट व्यावहारोपयोगी करण्याची क्रिया यास विलंब.

स्कॅनिंग डिव्हाईसची आवश्यकता.

क्विक रिस्पॉन्स कोड मध्ये माहिती, योजना, युक्ती एक्सेस करू इच्छित असल्यास त्या डिव्हाईसचे समर्थन पाहिजे जे क्विक रिस्पॉन्स कोड स्कॅनिंग सुविधेचे समर्थन करते.

क्विक रिस्पॉन्स कोडमध्ये माहिती समाविष्ट करण्यासाठी वेळ लागतो.

क्विक रिस्पॉन्स कोड रिडर सॉफ्टवेअरची आवश्यकता असते.

सारांश : आजच्या तांत्रिक आणि डिजिटल युगामध्ये नवनवीन आधुनिक साधने वापरणे व ग्रंथालयाकडून आधुनिक समृद्ध माहिती संसाधने शैक्षणिक वापरकर्ता समुदायासाठी मुक्तरित्या प्रदान करते महत्वाचे आहे. ग्रंथालयांना ज्ञानाचा खजीना घर म्हणून ओळखले जाते. मोबाईल तंत्रज्ञानाच्या वाढत्या वापरामुळे मोबाईलवर आधारित क्विक रिस्पॉन्स कोड तंत्रज्ञान माहिती संसाधनासह वाचक समुदायास जोडणे आवश्यक आहे. ग्रंथालयात क्विक रिस्पॉन्स कोडची उपलब्धता असल्यास विद्यार्थी, संशोधक, वाचक सहजपणे त्यावर प्रवेश करू शकतात. क्विक रिस्पॉन्स कोड रिडरच्या सहाय्याने वाचन साहित्य स्कॅन करून वाचू शकतात त्यामुळे क्विक रिस्पॉन्स कोड ग्रंथालयासाठी खुपच उपयुक्त आहेत. क्विक रिस्पॉन्स कोड हे वापरकर्त्यांशी संवाद साधण्याचे एक अत्यंत मौल्यवान आणि मैत्रीपूर्ण साधन असल्याचे सिद्ध होत आहे. ग्रंथालये आपल्याकडे असलेल्या तंत्रज्ञानाच्या सहाय्याने उपयोग कर्त्यांना चांगल्या प्रकारे सेवा प्रदान करत असते.

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