



WEB 2.0 AND WEB 3.0: TRANSFORMING LIBRARY SERVICES IN THE DIGITAL ERA

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Abstract

The evolution of the internet from Web 1.0 to Web 3.0 has significantly influenced how libraries function, communicate, and deliver services. Web 2.0 technologies introduced interactivity, user participation, and social collaboration, while Web 3.0—driven by artificial intelligence, blockchain, and semantic web technologies—ushers in personalization, data security, and intelligent information management. This paper examines how these advancements are transforming library services, from digital reference and cataloging to community engagement and data-driven decision-making. Through a qualitative review of literature and case examples, the study highlights the growing role of Web 2.0 and Web 3.0 in enhancing library accessibility, efficiency, and user experience in the digital era.

Keywords: Web 2.0, Web 3.0, Evolution, Technologies, Digital, Libraries, Transformation

Introduction

The traditional library services were place-based services. Library users visit to the library to get information. But with the advent of information technology user's expectations about the library services are changing. The library users expects from libraries to provide virtual services rather than "place-based" services. The contemporary technologies like Internet, World Wide Web and modern databases have provided a well sophisticated environment for the development of digital libraries. A digital library is a large-scale, organized collection of complex and dynamic multimedia information and knowledge, and tools and methods to enable search, manipulation and presentation of this information and knowledge via Internet.

The World Wide Web has undergone another radical transformation over the past years. Due to the integration of social web, web application and technology, a new web environment (Web 2.0) came into existence. Social Web + Web Application + Technology = Web 2.0 As the latest technology tool, search was exhilarating, informative-and dramatically changed the way people looked for information. In Web 2.0, the web becomes the center of a new digital lifestyle that changes our culture and touches every aspect of our lives. The web moves from simply being sites and search engines to a shared network space that drives work, research, education, entertainment and social activities-essentially everything people do.

Libraries have traditionally served as the custodians of knowledge, adapting to societal and technological changes over time. The emergence of Web 2.0 marked a paradigm shift from static information delivery to dynamic, user-driven communication. Social media, blogs, wikis, and other interactive platforms empowered users to create and share information collaboratively. Libraries adopted these tools to improve information dissemination and foster digital literacy.

With the advent of Web 3.0, the internet evolved into a more intelligent and interconnected network, often called the “Semantic Web.” This next phase integrates artificial intelligence, blockchain, and machine learning to create smarter, decentralized, and personalized systems. Libraries are beginning to leverage these technologies to enhance cataloging, data management, and user engagement. This study explores how both Web 2.0 and Web 3.0 tools are reshaping the landscape of library services.

Literature Review

Web 2.0 in Libraries

Web 2.0 tools have overcome barriers to communication and the distance between the libraries and users (Stuart, 2010). Web 2.0 applications encourage patrons to be an integral part of the virtual community by sharing their ideas, thoughts, feelings and other content. They allow patrons to contribute to the maintenance of catalogues, review resources, locate and share relevant information with other patrons and society (Farkas, 2007).

The concept of “Library 2.0” emerged from Web 2.0 technologies, emphasizing user participation and service customization (Maness, 2006). Tools such as blogs, RSS feeds, wikis, podcasts, and social networking sites have been widely adopted by libraries for communication and outreach (Casey & Savastinuk, 2007). Studies highlight that Web 2.0 applications improve collaboration, increase user engagement, and make library services more interactive.

Transition to Web 3.0

Web 3.0, often termed the “Intelligent Web,” uses semantic technologies and AI to understand user intent and context. Berners-Lee et al. (2001) describe it as a web where data is linked in a way that can be understood and processed by machines. Libraries are exploring blockchain for digital rights management, AI for recommendation systems, and linked data for better resource discovery.

Web 3.0 and Library Transformation

Recent research emphasizes that Web 3.0 technologies can revolutionize libraries by enabling smart search systems, automated metadata generation, decentralized information storage, and enhanced data privacy (Gupta & Sharma, 2022). Libraries adopting these technologies can offer more personalized and intelligent services, aligning with the evolving expectations of digital-age users.

Web 2.0 sites allow for user interaction and participation by having a user-friendly interface where one can edit and publish the existing information. The term Web 3.0 describes sites where computers will be generating raw data on their own (Prabhu, Devika 2016).

in other words Web 3.0 is also called as semantic web or intelligent web. Libraries should transform themselves to adopt with Web 3.0 (Thakuria & Baruah, 2021).

Objectives

To analyze the role of Web 2.0 and Web 3.0 technologies in library services.

To identify the major applications and tools of Web 2.0 and Web 3.0 in libraries.

To examine the impact of these technologies on library management and user experience.

To suggest strategies for libraries to integrate emerging technologies effectively.

Web 2.0

“Web 2.0” describes the changing trends in the use of World Wide Web technology. Web 2.0 concepts and technologies have provided to develop web applications for social networking, audio/video sharing, information book marking, blogs, wikis and folksonomies with a rich user experience.

The term Web 2.0 was coined in 1999 by Darcy DiNucci in her article. Its rise and popularity began in 2004, when O'Reilly Media and MediaLive organized the first Web 2.0 conference. Tim O'Reilly who tried to define it as follows: “Web 2.0 is the network as platform, spanning all connected devices; Web 2.0 applications are those that make the most of the intrinsic advantages of that platform: delivering software as a continually-updated service that gets better the more people use it, consuming and remixing data from multiple sources, including individual users, while providing their own data and services in a form that allows remixing by others, creating network effects through an ‘architecture of participation’ and going beyond the page metaphor of Web 1.0 to deliver rich user experiences” (O'Reilly, 2005) .

Web 2.0 Characteristics

The characteristics of Web 2.0 are as follows

- User Participation
- Open Standards
- Decentralization
- Openness
- Modularity
- User Control
- Rich User Interactions

User Participation: Every aspect of Web 2.0 is driven by user participation. The transition to Web 2.0 was enabled by the emergence of platforms such as blogging, social networks, and free image and video uploading, that collectively allowed extremely easy content creation and sharing by anyone.

Standards: Standards provide an essential platform for Web 2.0. Common interfaces for accessing content and applications are the glue that allows integration across the many elements of the emergent web.

Decentralization: Web 2.0 is decentralized in its architecture, participation, and usage. Power and flexibility emerges from distributing applications and content over many computers and systems, rather than maintaining them on centralized systems.

Openness: The world of Web 2.0 has only become possible through a spirit of openness whereby developers and companies provide open, transparent access to their applications and content.

Modularity: Web 2.0 is the antithesis of the monolithic. It emerges from many, many components or modules that are designed to link and integrate with others, together building a whole that is greater than the sum of its parts. Users are able to pick and choose from a set of interoperating components in order to build something that meets their needs.

User Control: A primary direction of Web 2.0 is for users to control the content they create, the data captured about their web activities, and their identity. This powerful trend is driven by the clear desires of participants.

Identity: Identity is a critical element of both Web 2.0 and the future direction of the internet. We can increasingly choose to represent our identities however we please, across interactions, virtual worlds, and social networks.

Web 2.0 Tools

Web 2.0 refers to the development of online services that encourage collaboration, communication and information sharing. The following are the several tools, technologies, services and applications of Web 2.0, which are very useful to adopt in design of digital libraries as more user-centered.

i) Blog

Blog (Web Log) is a major application of Web 2.0 era. The term web-log, or blog, was coined by Jorn Barger in 1997 and refers to a simple webpage consisting of brief paragraphs of opinion, information, personal diary entries, or links, called posts.

ii) Wikis

Wikis have emerged in 1995 and since then growing by leap and bound. A wiki is a webpage or set of WebPages that can be easily edited by anyone who is allowed access (Ebersbach et al., 2006). Wikis are another example of collaborative creative work. Multiple users from all over the world can build a knowledge base by using this application. Wikipedia is a great example of this kind of collaborative work.

iii) RSS

RSS is another Web 2.0 application which helps users to bring the updates and feeds from other websites. It is a very simple tool to bring the latest stories, updates from news groups, magazines, journals and blogs. Really simple syndication is a family of web feed format used to publish information about frequently updated works, such as blog entries, news feeds, live audio, and video in the standard formats (Libby, 1999).

iv) Instant Messaging (IM)

Instant messaging is a real-time text/audio/video communication between two or more people based on typed text, images etc. IM has become increasingly popular due to its quick response time, its ease of use, and possibility of multitasking. Instant Messaging (IM) is also a very useful tool which may help library professionals to provide library services.

v) Social Networking

Web 2.0 is Collaborative and Interactive. Social networks are based upon the software that facilitate people to connect, collaborate, and form virtual communities via internet. Normally social network sites are full of

features, which allow the user community to send e-mails, post comments, share audio and video files, take part in live chats, etc.

Social networking could allow librarians and users not only to communicate, but also to add and share resources dynamically. Libraries can create their own account on social networking sites and patrons can access the library page by searching from their account to see what other patron might have in common to their information needs and libraries can suggest resources to patrons.

Facebook, Twitter, LinkedIn, Youtube, Flickr, Picasa, Pinterest, Instagram, Quora etc., are the social networks that are very popular nowadays.

vi) Social Bookmarking

Social bookmarking applications enable people to save or bookmark their favorite websites, blog posts, images, articles or podcasts with the required title or description in online space. These systems allow users to create lists of bookmarks or favourites, to store them centrally on a remote service, and to share them with other users of the system. By enabling this feature in digital libraries, users can create and share a set of resources with other users. I

vii) Tagging

Another Web 2.0 feature which is becoming common in library community is called tagging. After bookmarking a page, user have the option of adding "tags" to the bookmark. A tag is a label that helps user to identify a bookmark they have made. These tags are used to help better categorization of while searching them in future. A tag is a keyword that is added to a digital object (e.g. a website, picture or video clip) to describe it.

Viii) Podcasting

The word podcast comes from the amalgamation of the words iPod and broadcast. A podcast is a series of audio or video digital-media files which is distributed over the Internet by syndicated download, through Web feeds, to portable media players and personal computers.

ix) Vodcasts

Vodcasting is the video format of the same kind of service. Vodcast mainly is used to deliver videos on demand to patrons over the web. The functioning features and limitations of vodcast are similar to those of podcast. The size of video programs is comparatively larger than the size of audio programs; therefore, vodcasts need high speed Internet connectivity. To reduce downloading time, vodcast video clips are typically three to five minutes in duration. These services allow the users to have a higher level of control over what media they want as it works on the demand and supply chain of activity.

Features of Web 2.0

Andrew McAfee (2006) used the acronym SLATES to represent the Web 2.0 features/techniques:

Search: the ease of finding information through keyword search which makes the platform valuable.

Links: guides to important pieces of information. The best pages are the most frequently linked to.

Authoring: the ability to create constantly updating content over a platform that is shifted from being the creation of a few to being the constantly updated, interlinked work. In Wikis, the content is iterative in the sense that the people undo and redo each other's work. In blogs, content is cumulative in that posts and comments of individuals are accumulated over time.

Tags: categorization of content by creating tags that are simple, one-word descriptions to facilitate searching and avoid rigid, pre-made categories.

Extensions: automation of some of the work and pattern matching by using algorithms e.g. amazon.com recommendations.

Signals: the use of RSS (Really Simple Syndication) technology to notify users with any changes of the content by sending e-mails to them.”

Origin of Web 3.0

The term Web 3.0 originated in the early 2000s, following the evolution of the World Wide Web from its earlier stages — Web 1.0 and Web 2.0.

Web 1.0 (1990s–early 2000s): The first stage of the web, also called the “read-only web,” consisted mainly of static web pages where users could only view information without interacting or contributing.

Web 2.0 (early 2000s–present): Introduced interactivity, user participation, and collaboration through platforms like social media, blogs, and wikis. It is known as the “read-write web.”

Web 3.0 emerged as a concept of the “semantic” or “intelligent” web, proposed by Tim Berners-Lee, the inventor of the World Wide Web. He envisioned a web that could understand, interpret, and process information in a way similar to human reasoning.

By the late 2010s and early 2020s, the concept evolved further to include decentralization, blockchain technology, artificial intelligence (AI), and machine learning (ML), moving towards what is now commonly understood as the decentralized and intelligent web.

Definition of Web 3.0

Web 3.0, also known as the Semantic Web or Decentralized Web, refers to the third generation of Internet technology that aims to create a more intelligent, connected, and open web experience. It integrates semantic understanding, artificial intelligence, and blockchain-based decentralization to enable machines to interpret and link data more meaningfully.

According to Tim Berners-Lee, Web 3.0 is a web where “data is linked in such a way that it can be understood by machines as well as humans.”

Key Characteristics of Web 3.0

Semantic Understanding: Enables machines to interpret data contextually rather than just display it.

Artificial Intelligence (AI): Facilitates intelligent search and personalized recommendations.

Decentralization: Shifts control from centralized corporations to peer-to-peer networks through blockchain.

Interoperability: Seamless connection and communication between platforms and devices.

Ubiquity and Connectivity: Accessible anytime, anywhere, on any device through the Internet of Things (IoT).

User Ownership of Data: Empowers users to control their digital identity and data privacy.

Web 3.0 marks the evolution of the Internet from a platform of information sharing (Web 1.0) and social interaction (Web 2.0) to one of intelligent, decentralized, and user-controlled systems, aiming to make the web more semantic, secure, and personalized.

Application of Web 3.0

Web 3.0, often described as the "semantic web," represents a more intelligent and connected internet, where data can be understood and processed by machines. Libraries are beginning to explore several applications of Web 3.0, including:

- i) Linked Data:** This concept allows libraries to connect disparate data sets across the web, improving interoperability and resource discovery. By implementing linked data practices, libraries can enhance cataloging and improve user access to information.
- ii) Machine Learning and AI:** Libraries are beginning to use machine learning algorithms for personalized recommendations based on user behavior, thus refining the user experience. Chatbots are being implemented to provide instant responses to common queries, helping staff to allocate their time efficiently.
- iii) Decentralized Platforms:** Web 3.0 promotes decentralization through blockchain technology. Some libraries are investigating how blockchain can be used for secure transactions, copyright management, and digital rights, ensuring authors receive fair remuneration for their work.
- iv) Enhanced User Control:** In Web 3.0, users have greater control over their data, which impacts how libraries design their systems. Libraries are exploring methods to allow users to manage their data privacy while still benefiting from personalized services.
- v) Virtual Reality and Augmented Reality:** Libraries are experimenting with AR and VR to provide immersive experiences. Whether it's virtual tours of historical archives or interactive educational programs, these technologies promise to engage users in novel ways.

Major Applications of Web 3.0 in Libraries

a) Semantic Search and Intelligent Information Retrieval

Web 3.0 enables semantic search engines that understand the context and meaning of queries, rather than just matching keywords. This allows users to find more accurate and relevant resources in library catalogs and databases.

Example: Using RDF (Resource Description Framework) and OWL (Web Ontology Language) to link related information across digital collections.

b) Linked Data and Knowledge Graphs

Libraries can use Linked Open Data (LOD) to connect their catalogs with global data repositories such as the Library of Congress or WorldCat. This improves discoverability and interoperability between different information systems.

Example: The Bibliographic Framework (BIBFRAME) replaces MARC records with linked data formats, enabling richer metadata and wider data sharing.

c) Blockchain for Digital Rights and Authentication

Blockchain technology ensures secure and transparent management of digital resources.

It can be used for:

Authenticating e-resources and user credentials.

Managing digital rights and copyright of library materials.

Recording borrowing and lending transactions securely.

d) Personalized Library Services

Through AI and data analytics, Web 3.0 enables libraries to offer personalized recommendations based on user preferences, reading history, and research interests.

Virtual library assistants can guide users in locating materials or suggesting related research topics.

e) Virtual and Augmented Reality (VR/AR) Integration

Web 3.0 supports immersive technologies that enhance learning experiences. Libraries can create virtual tours, interactive learning environments, or 3D archives, providing dynamic ways to explore collections.

f) Decentralized and Cloud-Based Information Systems

Decentralized data storage (using blockchain or distributed networks) reduces dependence on central servers and increases resilience.

Cloud computing allows libraries to host digital collections, provide remote access, and collaborate globally with reduced infrastructure costs.

g) Intelligent Digital Repositories

Web 3.0 enables smart repositories that automatically tag, organize, and relate content based on meaning. Researchers can use semantic metadata to connect publications, datasets, and multimedia resources more effectively.

Advantages and Disadvantages of Web 2.0 and Web 3.0 in Libraries**1. Web 2.0 in Libraries (Library 2.0)****Advantages:****User Participation and Collaboration:**

Web 2.0 tools such as blogs, wikis, and social media enable libraries to interact directly with users, fostering community engagement and knowledge sharing.

Enhanced Information Dissemination:

Libraries can easily share updates, events, and new resources through social networking sites and RSS feeds.

Improved Access to Services:

Online catalogs, virtual reference services, and OPAC 2.0 allow users to search, reserve, and renew books remotely.

Personalization of Services:

Tagging, recommendations, and user-generated reviews help create a personalized library experience.

Promotion of Lifelong Learning:

Interactive tools like webinars, podcasts, and discussion forums support user education and continuous learning.

Disadvantages:**Privacy and Security Issues:**

User participation may expose personal data to privacy risks.

Information Overload:

Excessive user-generated content can lead to clutter and difficulty in filtering reliable information.

Need for Technical Skills:

Both librarians and users require digital literacy to effectively use Web 2.0 tools.

Maintenance Challenges:

Continuous updates and content moderation require time, effort, and technical resources.

Quality Control:

User-generated information may lack authority and accuracy.

2. Web 3.0 in Libraries (Library 3.0)**Advantages:****Semantic Search and Intelligent Information Retrieval:**

Web 3.0 enables libraries to offer context-aware and personalized search results using AI and semantic web technologies.

Decentralization and Data Ownership:

Blockchain and decentralized systems ensure secure transactions, digital rights management, and better data control.

Enhanced User Experience:

Artificial intelligence (AI), virtual reality (VR), and augmented reality (AR) provide immersive learning and research experiences.

Interoperability and Linked Data:

Library data can be connected across systems and platforms, enhancing global knowledge sharing.

Automation of Library Services:

Smart chatbots and AI-driven cataloging improve efficiency and reduce librarian workload.

Disadvantages:**High Implementation Cost:**

Advanced technologies like AI, blockchain, and semantic web require significant investment.

Technical Complexity:

Managing and maintaining Web 3.0 systems demand skilled IT professionals.

Digital Divide:

Not all users have equal access to advanced technologies or high-speed internet.

Ethical and Privacy Concerns:

Use of AI and data analytics can raise issues of surveillance, bias, and data misuse.

Slow Adoption Rate:

Many libraries, especially in developing regions, face challenges in adopting Web 3.0 due to infrastructure and funding limitations.

Summary Table

Aspect	Web 2.0 (Library 2.0)	Web 3.0 (Library 3.0)
Key Feature	User participation and collaboration	Semantic, intelligent, and decentralized web
Main Advantage	Enhances communication and interaction	Provides smart, personalized, and secure services
Main Disadvantage	Quality and privacy issues	High cost and technical complexity
User Role	Content creator and collaborator	Data owner and intelligent user
Library Role	Facilitator of interaction	Intelligent service provider

Findings and Discussion**1. Applications of Web 2.0 in Libraries**

Blogs and Wikis: Used for news updates, guides, and collaborative projects.

Social Media Platforms: Facilitate outreach, user feedback, and community building.

RSS Feeds and Podcasts: Support current awareness services and digital literacy programs.

Online Tagging and Reviews: Allow users to participate in catalog enrichment.

These tools have made library services more participatory and user-centered.

2. Applications of Web 3.0 in Libraries

Semantic Search: Improves information retrieval through AI-driven understanding of user intent.

Blockchain Technology: Enhances digital rights management and transaction transparency.

Linked Data: Enables resource sharing and interoperability across institutions.

AI-Powered Recommendation Systems: Provide personalized resource suggestions based on user behavior.

Libraries are gradually adopting these tools to move toward “Library 3.0,” characterized by smart and decentralized service systems.

3. Impact on Library Management

The integration of Web 2.0 and Web 3.0 has improved communication, collaboration, and decision-making within libraries. It has also streamlined cataloging, reduced manual workloads, and provided insights through data analytics. Moreover, Web 3.0 supports secure data exchange and long-term preservation of digital content.

4. Challenges

Despite the advantages, challenges include lack of technical expertise, funding constraints, data privacy concerns, and resistance to change. Training programs and institutional support are crucial for successful implementation.

Conclusion and Suggestions

The transformation from Web 2.0 to Web 3.0 marks a critical evolution in library services, shifting from participatory to intelligent and personalized systems. Web 2.0 fostered collaboration and interaction, while Web 3.0 brings automation, semantic connectivity, and decentralized control.

To fully harness these technologies, libraries should:

Invest in staff training and capacity building.

Develop policies for ethical and secure use of AI and blockchain.

Foster partnerships with technology providers.

Encourage user participation and feedback in digital service design.

Continuously evaluate technological tools for sustainability and inclusivity.

By embracing these advancements, libraries can remain dynamic, relevant, and responsive to the information needs of the 21st-century user.

References

1. Aqil, Mohammad, Ahmad, Parvez and Siddique, Mohammad Asad. (2011). 'Web 2.0 and Libraries: facts or Myths'. *DESIDOC Journal of Library & Information Technology*. 31(5), 395.
2. Bejune, M. M. (2007). 'Wikis in libraries'. *Information Technology and Libraries*. 26(3), 27-30.
3. Berners-Lee, T., Hendler, J., & Lassila, O. (2001). The Semantic Web. *Scientific American*, 284(5), 34–43.
4. Casey, M. E., & Savastinuk, L. C. (2007). Library 2.0: A guide to participatory library service. *Information Today*.
5. Castelli, D (2006), "Digital Libraries of the Future – and the Role of Libraries". *Library Hi Tech*. 24(4), 496-503.
6. Gupta, S., & Sharma, R. (2022). Web 3.0 technologies and their applications in modern libraries. *Journal of Library and Information Technology*, 42(2), 115–123.
7. Mahmood, K., & Richardson Jr, J. V. (2011). Adoption of Web 2.0 in US academic libraries: a survey of ARL library websites. *Program*. 45(4), 365–375.
8. Miller, P. (2005). Web 2.0: Building the new library. *Ariadne*. 45(30), 10.
9. Tripathi, M., & Kumar, S. (2010). Use of Web 2.0 tools in academic libraries: A reconnaissance of the international landscape. *The International Information & Library Review*. 42(3), 195–207.
10. Zadeh, S., Veisi, A., & Zadeh, E. (2013). Web 2.0 and libraries. *IJAR*, x(xxxx).
11. Maness, Jack M. Library 2.0 theory: Web 2.0 and its implications for libraries. *Webology*, 2006, 3(2).
12. Sastry, Hanumat G. and Reddy, Lokanatha C. (2010). 'Significance of Web 2.0 in Digital Libraries'. *International Journal on Computer Science and Engineering*. 02(06), 2208-2211.

13. Mukhopadhyay, Parthasarathi (2008). *Towards Library 2.0: Designing and Implementation the Modern Library Services*. PLANNER-2008 (Jointly organized by INFLIBNET, UGC and Nagaland University), November 06-07, 198-199.
14. Boateng, R., Mbarika, V., & Thomas, C. (2010). When Web 2.0 becomes an organizational learning tool: evaluating Web 2.0 tools. *Development and Learning in Organizations*, 24(3), 17-20.
15. Harinarayana, N. S. (2010). Web 2.0 features in university library web sites. *The Electronic Library*, 28(1), 20.
16. Linh, N. C. (2008). A survey of the application of Web 2.0 in Australasian university libraries. *Library Hi Tech*. 26(4), 630-653.
17. Saha, Nimai Chand, De, Suman, Paul, Nirmalendu. (2008). Application Of Web 2.0 In Library And Information Science: With Special Reference To RSS. PLANNER-2008 (Jointly organized by INFLIBNET, UGC and Nagaland University), November 06-07, 415-429.
18. N, Mohmed Hanif. (2009). Need for Web 2.0 Technology for the Libraries. 7th International CALIBER-2009, (Jointly organized by INFLIBNET and Pondicherry University), February 25-27, 330-336.
19. Rakshikar, Nidhi N. (2015). Application of Web 2.0 in academic libraries: a study of college libraries in Mumbai. *International Journal of Advanced Research* . 3(7), 768-777.
20. Sarkhel, Juran Krishna and Khan, Md. Milan. (2014). Web 2.0 Technologies: Building The New Web-Based Libraries. *DIU Journal of Humanities and Social Science*, Volume 2, 47-59.
21. Rehman, Ata ur and Shafique, Farzana. (2011). Use of Web 2.0 and Its Implications for Libraries: Perceptions of Information Professionals in Pakistan. *Library Philosophy and Practice (e-journal)*. 623.
22. Kataria, Sanjay and K., John Paul Anbu. (2009). Applications of Web 2.0 in the Enhancement of Services and Resource in Academic Libraries : An Experiment @ JIIT University Noida, India. ICAL 2009 – LIBRARY SERVICES. 583-589.