Impact of Emerging trends and technologies on academic librarianship

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ABSTRACT

Libraries are so valuable that they attract voracious new competition with every technological advance. The Emerging trends and technologies in the late 1990s have completely changed ways of accessing, collecting, organizing and searching multi format information in library setting. In this modern information society the academic library has been an indispensable academic department in the promotion of excellence in teaching and learning in the networked academic learning environment. The Internet has become the primary platform for setting up various library and information sources and services. The advancement of emerging technologies provides libraries with innovative ways of initializing creative services in cyberspace.

Technology provides the chance for librarians to innovate, boost quality, measure success, and align services with the priorities of their organizations. With technology, librarians can reintroduce themselves as visible, valuable, and essential partners in achieving common goals. This is especially important in the context of today's tight funding climate and the never-ending struggle to advocate for and secure necessary funding and support for libraries. The results of ICT and the digital revolution, and call for developing new competencies and skills as well as a new set of proficiencies. New IT applications reduce the need for traditional manual processing in libraries, digital and electronic resources change library operations, processes, and workflows, including skills and competencies required for librarians and support staff. All these changes cause library organization and management changing.

Although not by any means a new issue, the emerging trends and technologies were in all its levels will continue to have an impact on the development of the academic library. Academic libraries will need to examine their own status with this emerging technologies. These technologies and trends impact on individual or institutional level, will continue to shape the development of the academic library. New technology has provided great opportunities for delivery of services within consortia. More and more libraries must unite, which of course requires a change in the attitudes, practices and policies to get the maximum benefit. Libraries can build on existing strong consortia and partnership networks. Overall, emerging trends for academic libraries reflect the growing importance for collaboration.

Keywords: Academic Libraries, Librarianship, Emerging Technologies, Communication Technologies, Professional Education, Digital libraries.
1. Introduction

In this digital age, academic libraries are facing a variety of challenges such as ongoing budget cuts, application of new information technologies, changing internal and external environments, and changing demands of research and teaching. Today, academic libraries are no longer the only choice for students, faculty, staff and other clients to go to for information. Libraries are becoming a very important place for learning and discussion. Furthermore, they are redesigning themselves to create more learning space. Libraries are also using many innovative approaches to serve the changing needs of the users. Technology provides the chance for librarians to innovate, boost quality, measure success, and align services with the priorities of their organizations. With technology, librarians can reintroduce themselves as visible, valuable, and essential partners in achieving common goals. This is especially important in the context of today's tight funding climate and the never-ending struggle to advocate for and secure necessary funding and support for libraries.

The results of ICT and the digital revolution, and call for developing new competencies and skills as well as a new set of proficiencies. It also seeks to analyse the role of professional bodies, especially in India, in preparing librarians to meet these challenges.

Therefore, this paper attempts to analyze the problems of the present technologies and gives an idea about emerging technologies that could alleviate the erstwhile problems. It was concluded that in order to meet the challenges emerging out of library services and in management, technological advancements has to be updated at regular times to compete the faster growing environment.

New IT applications reduce the need for traditional manual processing in libraries, digital and electronic resources change library operations, processes, and workflows, including skills and competencies required for librarians and support staff. All these changes cause library organization and management changing. Libraries can build on existing strong consortia and partnership networks.

The role of the academic librarian is changing and the librarians are upgrading their skills and expertise to stay abreast of the ever-changing library environment. In this profession nobody knows what the future holds but deliberation, discussion and sharing expertise and learning experience with academic librarians around the world will definitely help.

2. Objectives

The purpose of this study was to extent the academic libraries expose a variety emerging technologies and trends to support the development of higher education and learning practices in India. The study was guided by the following objectives to:

- The applications of emerging trends and technologies used in academic libraries to support education, research and learning practices.
- Determine the impact of emerging trends and technologies in academic libraries and librarians.
- Examine the changing nature of academic libraries in institutions of higher learning.
- Determine fundamental skills and competencies needed by information professionals in the modern environment.
To understand how academic libraries are shaping themselves and preparing for the future in a digital system.

It will provide an opportunity for the academic professionals across the world to share their experiences, ideas, research and knowledge for mutual benefit with fellow library professionals.

To provide a platform to address issues relating to the emerging technology and trends that are reshaping across libraries.

3. Need and Purpose

The trends where librarians are expected to develop or include in the library and information services to inculcate the new era information business are summarized

- Trends in 21st librarianship training.
- Enhanced collection development in all format (print and digital)
- Participatory librarianship and library educators (information literacy)
- ICT compliancy library
- Enhanced information management skill
- Client-oriented services
- Technical and human relation skills – this involves hard Skills Training (such as computer skills, language skills, statistics, and others) and soft skills training, dealing with more intangible skills as interpersonal communication, leadership, decision skills, problem solving.
- Digital librarianship (media resources manager)
- Custodians of refined information (appropriate, authentic and accurate)
- Entrepreneurs of Information Partnership with community (town and gown relationship)
- Liaison officers – leveraging between patrons and information
- Information marketers.

4. Changes and challenges

This ICT evolution led to the emergence of three trends:

1. **Information workers turning into information creators**: information workers, while collecting and analyzing data, came across opportunities to deepen their knowledge and create information as a by-product of their everyday work.

2. **A focus on individual-oriented customised information**: catering, as the term implies, to an individual’s specific information needs rather than the general needs of users.

3. **Knowledge management**: the present librarian, on shifting from collection management to knowledge management, exploits not only collections held internally, as expected, but also designs and develops innovative process services and products through the effective use of ICT. ICT today provides a challenge as well as an opportunity to librarians to cope up with the unstoppable paradigm shift.
The emerging trends and challenges triggered by technology, and thereby the paradigm shift in the delivering of goods. These developments are principally digitization and related issues like metadata standards, copyright issues, preservation, networking, storage solutions, knowledge management, multimedia technology, automation and standardization, institutional repositories, consortia approach and cooperation/sharing, online journals and their management, communication skills including technical writing, e-publishing, webpage hosting, and the like. The latest arrival has been the use of Web 2.0. Thus the demand on librarians for continuous lifelong education and updating is tremendous. Similarly the demand on librarians’ time, longer and lonely hours, is also tremendous.

The library’s role as a repository for knowledge is changing as libraries manage both physical and digital collections.

- Manage investment in eBooks and third-party digital collections
- Transition to “just-in-time” acquisition models
- Explore alternative access models for scholarly literature
- Right-size print collections while repurposing library space. Good space is more important than more space.
- Host experimental classrooms, collaborative study rooms, and sophisticated technology Research.
- Librarians help students and faculty master new tools to manipulate information.
- Develop new roles for library staff in teaching and research support
- Understand the implications of digital technology for information services learning.
- The library has become the central meeting place on many campuses, increasingly playing the role traditionally filled by the student center.
- Create flexible informal study and meeting spaces
- Deliver mobile content
- Record scholarly research
- Manage research data
- Provide open access to funded research
- Rethink library space design New Media Consortium Challenges
- Integrating research libraries into curriculum
- Improving digital literacy
- Competing with other sources of information
- Hiring, training and retaining staff who have the right skills, such as in data mining and web development
- Keeping up with the pace of technological change is forcing libraries to think big
- Information filtering using new tools for sorting, analyzing, and prioritizing Tech Developments
- Library maker spaces for students and faculty to create, thinker, and collaborate
- Services to develop their own online resources
- Info graphics creation to create compelling messages
- The Semantic web to relate pieces of information online
- Location-based services to discover and interact with content, such as indoor mapping
- New directions with the Framework for Information Literacy for Higher Education; Critical information literacy and fluency
- Emerging staff skillsets positions.
- Familiarity with technology and technical support, focus on the user experience, support for virtual services, digital humanities, and knowledge management.
- Emerging technologies, data analysis and visualization, and geographic information systems
- Open Educational Resources (OER).

By the impact of emerging trends the New Media Consortium Which of the important developments in technology will be most important to academic and research libraries worldwide within the next five years.

- Consumer Technologies: drones, real-time communication tools, robotics, wearable technology
- Digital Strategies: location intelligence, makerspaces, preservation & conservation technologies
- Internet Technologies: bibliometrics and citation technologies, block chain, digital scholarship, Internet of Things, syndication tools
- Learning Technologies: adaptive learning technologies, micro learning technologies, mobile learning, virtual and remote laboratories
- Social Media Technologies: crowdsourcing; online identity; social networks, virtual worlds
- Visualization Technologies: 3D printing, gis/mapping, information visualization, mixed reality, virtual reality
- Enabling Technologies: affective computing, artificial intelligence, big data, electro vibration, flexible displays, mesh networks, mobile broadband, natural user interfaces, near field communication, next-generation batteries, open hardware, speech-to- speech translation, virtual assistants, wireless power.
- New employees or redefined positions
- Consortia, shared infrastructure, and other types of cross-institutional collaboration • Digital preservation

5. Impact of emerging trends and technologies on academic librarianship

The emerging technology applications like automation, the web, the internet, institutional repositories, etc., are old stories. Hence we do not intend to go into these. The scene has advanced much more. Newer trends have set in. We shall discuss below emerging newer trends and their implications for academic librarianship.

5.1. The end of digital information as an additional format and its emergence as the only format. We are entering a decade where publishers start talking in terms of online journals only, online books only, and online music only. The later efforts of Google, and Microsoft, towards the massive digitization of books heralded this shift, ably helped by the fast
development of high-density storage facilities and communication. To web access to information held on the sites of the producer of information. The library is, in short, emerging as a guide and a facilitator.

5.2. **Ownership versus holding.** Though libraries do own information (digital) that they purchase, they no longer store it. Now the days are downloading content or receiving it in the form of discs for preservation no longer exist.

5.3. **Prominence of open content.** The open content movement started a decade ago and is expected to enter the main stream. As examples, besides saving on education costs and providing access to unreachable regions, this points to the changing choices of people in terms of when, what and how to learn. The academic librarian should be recognising this new trend and promoting open learning.

5.4. **Emergence of informal learning.** As in the case of other social sectors like banking or railway booking, which facilitate operations by patrons from anywhere, at any time, the new expectation about learning is that one should be able to study wherever and whenever one wants to. People want faster access to information in the context of increasing demands on their time by their home life, the workplace, and their social networks. Hence there is an emerging demand for informal learning, and the academic library needs to take note of it.

5.5. **Sense-making.** Another issue connected with internet resources is the challenge offered by the abundance of resources available through the internet and sense-making and credentialing. Here educators as well as academic librarians are placed on an equal footing in guiding users.

5.6. **Cloud-based technology.** Yet another notion the librarian should take into account is the growing model of browser-based software that is device-independent. This cost-saving system (while some challenges still remain), facilitated by cloud-based technology, is here to stay. The significance of this development to the academic librarian is a total shift to computers and the internet by everyone in the user community.

5.7. **Emerging predominance of e-books.** E-books have been around for some time, and it was believed that they would have a limited impact, that they would not replace print books at any cost. Aided by convenient electronic reading devices, which are easy to store and carry in hundreds, they promise to reduce costs and be more environmentally friendly.

5.8. **Strong surfacing of resource sharing:** A result of the emergence of the digital environment and connectivity, the consortia movement has provided a happy situation for all involved – i.e. libraries, users (vast number of resources at the click of the mouse, accessible beyond the constraints of time and space), and publishers increased visibility, and relatively inexpensive operation. An academic librarian should be proficient in the intricacies of the operations of various consortia in order to crop the best advantage.

5.9. **Application of Web 2.0 and 3.0:** Web 2.0, also known as Library 2.0, is the user-centred web, where blogs, wikis, social networks, multimedia applications and dynamic programming scripts are being used for collection, contribution and collaboration on the web.
The underlying principle is “share the resources collectively”. The application of Web 2.0 in libraries has taken libraries into a new generation. However, this technology should aid academic librarians in answering queries faster and accurately.

5.10. Virtual reference. Virtual reference is a situation where users communicate with reference librarians electronically, often in real time, over computers and the internet without being physically present. However, this is another instance of doing one’s daily business in a better way, but a very different way.

5.11. New form of scholarly collaboration. This new form of authoring / publishing / researching recognizes reader ratings, the inclusion of influential blogs, tagging, incoming links, and re-tweeting. These forms of scholarly collaboration (like giving links to blogs in research papers) are being considered for incorporation by important science publishers today.

5.12. Growing importance of mobile technology and simple augmented reality. Mobile learning implies participating in learning activities anywhere, at any times. Mobile technology offers vast potential as it allows instruction not only in the classroom but also extra-mural, in all types of pedagogy like face-to-face, online and blended. Today it is becoming portable on laptops and smart phones, and hence is becoming cheap. It is getting widespread use in campuses. It is going to replace the great videos of yesterday and the way they were made.

6. Conclusion

• Modern educational environment implies that academic institutions need to provide adequate information infrastructure to support access to education, learning, information and knowledge resources through digital technologies, internet of things applications, digital repositories, mobile computer devices and social media technologies (Facebook, Twitter and YouTube). Digital environment provides elearning, e-research, e-information and electronic repositories and therefore must be enhanced through modern technological resources and facilities such as social cloud computing and internet connections.

• Mobile computer applications and social media technology are growing rapidly among the millennium and new generation of youths or digital natives. Academic institutions and information organizations must pay attention to the growth and relevance of digital platforms that have been used successfully in branding business organizations as well as political and social mobilization activities. Usage of these systems and solutions has expanded educational, information and knowledge opportunities beyond traditional borders of organizations.

• Digital environment and internet of things economy are part of the larger teaching, learning and knowledge sharing ecosystem in higher education institutions and information management organizations. Digital technologies is expanding the boundaries and creating new roles and directions for business practices in higher education and information organization.
• Academic institutions and information management organizations need to provide adequate financial resources for the development and growth of digital gadgets and repositories, internet resources and mobile computer applications.

• Education and knowledge environments in academic institutions have immensely changed and organizations must provide innovative digital technologies to reduce the digital divide and increase learning opportunities to the millennium and new generation of students.

The library today & tomorrow
Today’s library goal: inviting campus destinations to study, collaborate, actively learn, research, have fun, and relax.

➢ not a warehouse of old books
➢ people still read books (including printed books)
➢ students do go to the library to do more than just study
➢ all content is not available for free on the Internet
➢ not all students are tech savvy
➢ many students are not fully information or tech literate
➢ increasing the library’s value in academic success an idea incubator for entrepreneurship & sustained innovation
➢ scholarly content and resources services for research & scholarship space to think & collaborate

REFERENCES

