

Enhancing University Library Services through Mobile Technology: A Study

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Abstract

In the digital age, university libraries are transforming into dynamic hubs of information that extend beyond physical walls. The use of mobile phone applications cannot be ignored in educational institutions, as it applies to libraries. However, mobile services are not persistent among academic libraries. Here, an attempt has been made to study the mobile-based services at the Bangalore University Library. With the rapid growth in internet usage through mobile phones and smartphones, libraries must adapt by offering their services via mobile platforms. This shift will help libraries strengthen relationships and enhance services for remote users. The paper focuses on using and applying mobile technology in libraries, highlighting its benefits, the development of mobile websites and applications, and delivering library services through mobile technologies.

Keywords: Mobile App; Mobile device; University Library; Library Services; Electronic Resources

1. Introduction

Mobile phones and other gadgets are becoming integral to everyone's life. Mobile phones provide various applications that allow them to perform multiple activities. Through mobile technology, Information access has become very convenient; users can access the required information from their homes. Mobile applications have become a primary interface for surfing the web, watching television, reading books, and interacting with friends. Libraries are social entities that connect people to people and people to books. Library professionals should learn about the new technological changes that help them to stay relevant in the mobile society. Library professionals must keep pace with the latest trends and integrate into the mobile realm to enhance the users' services. Mobile devices and services offer better flexibility in providing

and receiving Library services. With the simple 4G/5G connection, users can access e-books, e-journals, and multimedia content from their home.

2. Review of literature

Many studies have been conducted on the use of mobile libraries; some of these studies were presented here.

Mustapha Abdulqawiyyu et al (2021). This study reveals academic libraries evolve to meet the demands of remote and boundary-less access, mobile technology emerges as a vital tool for enhancing service delivery. This study explores the readiness of Bayero University, Kano Library to implement mobile-based information services. Using interviews with staff from the library's automation unit, the findings reveal strong support for mobile integration but highlight challenges such as limited staff commitment, inadequate technical expertise, poor internet connectivity, and lack of training. The study recommends targeted education for users, continuous staff development, and strategic marketing to ensure successful adoption of mobile library services.

Senevirathna (2021) conducted another study on Public libraries in the Matara district, Srilanka. According to this study, School children are the major users of the mobile libraries. The study shows that Public libraries face many problems, such as insufficient facilities to provide effective and efficient mobile library services, separate collection for mobile library services, and a lack of staff members.

Ashiq et al. (2023) study aimed to understand LIS students' perception of mobile learning along with their primary purposes, applications, advantages, disadvantages, and overall impact and satisfaction of using these devices.

Begum & Arunkumar (2024) This study explores user perspectives on mobile library services offered by the Belagavi City Central Library. Findings indicate that the majority of users engage with the mobile library primarily to access magazines and journals, with a strong preference for fiction, drama, biographies, and novels. The results highlight a growing demand for diverse reading materials beyond academic content. To meet user expectations and enhance service relevance, the study recommends expanding library holdings to include more fiction, non-print media, and general information resources through mobile platforms.

3. Objectives of Mobile Technology in the University Library

- Identify the Information Services delivered through Mobile Technology
- To determine the use of Mobile Technology for Information Service Delivery
- To examine the Challenges of Mobile Technology Application in the Library
- Assess the availability and usage of mobile based library services.
- To identify the solution to the challenges with the application of mobile technology

4. Key Features of Mobile-Enabled Library Services

• Mobile Apps for Libraries

Libraries develop dedicated mobile applications to give users access to catalogs, account management, e-books, audiobooks, and digital resources.

Examples: OverDrive, Libby, Hoopla.

- **Mobile-Optimized Library Websites**

Responsive websites that adapt to mobile devices, enabling seamless browsing of resources like catalogs, event calendars, and guides.

- **Access to Digital Collections**

Users can borrow e-books, audiobooks, videos, and other digital content via mobile platforms. Integration with platforms like EBSCOhost, JSTOR, or ProQuest ensures scholarly resources are accessible.

- **Virtual Library Cards**

Mobile devices serve as digital library cards, allowing users to check out items or access facilities without needing a physical card.

- **Notifications and Alerts**

SMS or app notifications remind users about due dates, new arrivals, or upcoming events.

- **Online Reference Services**

Libraries provide real-time chat, email, or social media support for reference inquiries.

- **Interactive Features**

Library QR codes link to additional resources, floor maps, or audio guides. Augmented reality (AR) enhances on-site navigation or showcases digital exhibitions. Self-Checkout and Return Mobile apps facilitate self-service checkouts and book returns through RFID or barcode scanning.

5. Requirements and skills required for implementing mobile-based Library services

- Library needs to obtain the necessary hardware and software
- The Library must provide a suitable physical and virtual environment for using mobile devices and accessories
- Optimize the Library OPAC, website, and database for mobile devices and introduce new services wherever possible.
- The internet services should be provided 24*7 to prevent data damage or loss.

Skills required

Librarians should acquire and apply the following skills to provide mobile-based services.

- Should have sufficient information about the hardware and software of mobile devices.
- Should build interactive library pages, OPAC, databases, virtual tours, etc.
- Should be familiar with both internet and intranet services, like using email, SMS, and preventing SPAM.
- Should acquire sufficient knowledge in searching and navigating through mobile devices, mobile web applications
- Sufficient knowledge while interacting with users via smartphone applications, mobile-friendly web pages, and third-party intermediary clients.
- Skills related in providing training and user orientation to market these services to users.

- Skills for interacting with users via smartphone applications, mobile-friendly web pages, and third-party intermediary clients. (Rajneesh Kumar,2017)

6. Mobile Device Used in the Library

- A Personal Digital Assistant (PDA)
- Smart Phones
- Cell Phones
- MP3 CD players
- A tablet computer

7. Library Services through Mobile App

Libraries serve as vital information centers where librarians strive to meet the diverse needs of users. In alignment with the Fourth Law of Library Science—"Save the time of the reader"—many ICT-based services have been introduced to enhance efficiency and accessibility. Extending this initiative, mobile technology offers a powerful platform to deliver library services conveniently and remotely. The following services can be effectively provided through mobile applications

- **Online Public Access Catalog (OPAC):**

Users can search, reserve, and renew books directly from their mobile devices.

- **Digital Resource Access:**

E-books, e-journals, and databases can be accessed anytime, anywhere.

- **Library Notifications:**

Alerts for due dates, new arrivals, and events can be sent via push notifications or SMS.

- **Virtual Reference Services:**

Real-time chat and inquiry support help users resolve queries instantly.

- **User Account Management:**

Mobile apps allow users to view borrowing history, fines, and account status.

- **Self-Checkout and Returns:**

Barcode or RFID-enabled mobile features facilitate contactless transactions.

- **Library News and Updates:**

Announcements, workshops, and policy changes can be communicated through the app.

- **Interactive Learning Tools:**

Integration of multimedia content, tutorials, and reading recommendations enhances user engagement.

8. Benefits of Mobile Technology for Information Service Delivery

- **Increased Accessibility:**

Mobile devices enable Users to access resources and services from anywhere at any time without any geographical barriers

- **Convenience:**

The user can access information at any time. It reduces physical visits to the Library and saves users time.

- **Enhanced Engagement:** Notifications and interactive tools foster user interaction.
- **Cost Efficiency:** Digital lending reduces the need for physical inventory and maintenance.
- **Digital Divide:** Ensuring equitable access for users without smartphones or reliable internet.
- **Privacy Concerns:** Safeguarding user data and complying with data protection laws.
- **Technical Support:** Training users and staff to use mobile technologies effectively.
- **Initial Investment:** Developing apps and digital infrastructure can be costly.

9. Limitations or Barriers:

Mobile technology has significantly enhanced the ability of libraries to deliver fast and flexible information services, its implementation is not without challenges. Despite its many advantages, several limitations hinder the full-scale adoption and effectiveness of mobile-based library services:

Limited Technical Expertise: Many library staff lack the necessary skills to manage and maintain mobile platforms, leading to underutilization of available tools.

Inadequate Infrastructure: Poor internet connectivity, outdated hardware, and insufficient digital resources can restrict access and performance.

Low User Awareness: Users may be unaware of mobile services or lack the digital literacy required to navigate them effectively.

Financial Constraints: Budget limitations often prevent libraries from investing in app development, software upgrades, and staff training.

Security and Privacy Concerns: Ensuring secure access to user data and protecting digital content from unauthorized use remains a critical issue.

Resistance to Change: Some staff and users may be hesitant to adopt new technologies due to comfort with traditional systems or fear of complexity.

Content Licensing and Access Restrictions: Mobile access to certain databases and digital materials may be limited by licensing agreements or platform compatibility.

10. Challenges of Mobile Technology

The application of mobile technology in libraries offers numerous advantages, but it also presents several challenges. Below are some key challenges that libraries face when integrating mobile technology into their services:

- **Limited Funding and Budget Constraints**

Implementing and maintaining mobile technology requires significant investment in infrastructure, software, and staff training. Libraries with limited budgets may struggle to afford these advancements.

- **Digital Divide and Accessibility Issues**

Not all users have access to smartphones or stable internet connections, limiting their ability to benefit from mobile library services. Some users may have difficulty navigating mobile apps due to disabilities or lack digital literacy.

- **Compatibility and Platform Fragmentation**

Libraries must develop mobile applications compatible with multiple operating systems (Android, iOS, Windows). Older devices may not support the latest applications, leading to usability issues.

- **Security and Privacy Concerns**

Mobile technology increases the risk of data breaches, unauthorized access, and cyber threats. Protecting users' personal information and ensuring secure transactions (e.g., for e-book lending or payments) is a significant challenge.

- **Technical Issues and Maintenance**

Regular updates, bug fixes, and maintenance are required to ensure the smooth operation of mobile library services. Some libraries may lack in-house IT expertise, making troubleshooting and updates difficult.

- **User Awareness and Adoption**

Some library users may be unaware of available mobile services or hesitant to use them due to a lack of familiarity. Effective promotion and user training are necessary to encourage adoption.

- **Limited Mobile-Friendly Content and Resources**

Not all library resources are available in mobile-friendly formats. Digitization of materials can be expensive and time-consuming.

- **Internet Connectivity Issues**

In some regions, especially rural areas, unstable internet connections can hinder mobile access to library services. Dependence on Wi-Fi can limit accessibility for users who lack mobile data.

- **Resistance to Change**

Library staff and users accustomed to traditional services may resist adopting mobile technology. Training and change management strategies are needed to ease the transition.

- **Legal and Copyright Issues**

Licensing agreements for digital resources may restrict access on mobile platforms. Compliance with copyright laws can limit the availability of e-books and other digital content.

11. Conclusion

In the current information age, internet usage is rapidly increasing, with mobile technology playing a crucial role due to the growing number of mobile users. This trend presents a valuable opportunity for libraries and information institutions to rethink and upgrade their services by adopting mobile technologies. Various tools and techniques enable libraries to deliver efficient services through mobile platforms. Many individuals and institutions also actively develop and utilize mobile technologies in higher education. Creating mobile-friendly websites for Indian libraries enhances timely and widespread access to information for users. Mobile technology has dramatically improved library services' efficiency, reach, and responsiveness. It enables libraries to meet modern user expectations for convenience and mobility, but it also brings equity and technical support challenges. Libraries must continue to innovate while ensuring inclusive access for all users.

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