



The Importance of Social Media and Assistive Technology in Smart Library Services

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Abstract

This study looks at how the relationship between libraries and social media is changing in the digital information ecosystem. Because platforms like Facebook, Instagram, and Twitter are growing so quickly, libraries have changed from being places to store information to being places where people can find and share information. Libraries can use social media to get people more involved, promote their services, share information, and build online communities. The study shows how libraries use these sites for marketing, teaching people how to use technology, and talking to users in real time. It also talks about problems like how to trust information, privacy issues, and the need for librarians to get professional training. The study employs a conceptual and analytical methodology to assess the influence of social media integration on library services. It concludes that strategic planning and ethical considerations must be adequately addressed for effective use of social media to significantly improve the accessibility, visibility, and relevance of libraries in the digital age.

Key Words: Social Media, Library Services, Digital Engagement, Information Dissemination, User Interaction.

Introduction

In the digital era, libraries are undergoing a significant transformation from traditional information repositories to dynamic, user-centred knowledge hubs. The concept of smart library services has emerged as a result of advancements in information and communication technologies (ICT), artificial intelligence, and digital platforms. Smart libraries aim to provide seamless, efficient, and inclusive access to information resources for all users.

Two key elements driving this transformation are social media and assistive technology. Social media has revolutionized the way libraries communicate, engage, and interact with their users, while assistive technology ensures equitable access for individuals with disabilities and diverse learning needs. Together, they play a critical role in fostering inclusivity, accessibility, and user satisfaction in smart library environments. The advent of digital technologies has significantly transformed the functioning and role of libraries in the contemporary information society. Traditionally regarded as repositories of books and printed knowledge, libraries have evolved into dynamic centers for information access, learning, and community engagement. In this context, the emergence of social media platforms has created new opportunities for libraries to expand their reach, enhance service delivery, and interact more effectively with users.

Social media, including platforms such as Facebook, Instagram, Twitter, and YouTube, has become an integral part of daily communication and information sharing. Libraries are increasingly adopting these platforms to promote their resources, announce events, provide updates, and engage with diverse user groups in real time. This shift reflects a transition from passive information provision to active user participation, where libraries not only disseminate information but also facilitate dialogue and collaboration.

The integration of social media into library services has also contributed to improved accessibility and visibility. Users can now access library information remotely, participate in virtual programs, and receive instant assistance, thereby overcoming geographical and temporal barriers. Moreover, social media supports the development of digital literacy among users by exposing them to various online tools and resources.

However, the use of social media in libraries is not without challenges. Issues related to information authenticity, data privacy, digital divide, and the need for skilled personnel must be addressed to ensure effective implementation. Therefore, it is essential for libraries to adopt strategic approaches and policies for the ethical and efficient use of social media.

Overall, social media has redefined the traditional boundaries of libraries, making them more interactive, accessible, and relevant in the digital age.

Significance of the Study

This study is important because it looks at how social media has changed library services and how people use them. It shows how libraries can use digital platforms to improve access, communication, and the spread of information. The study is significant for librarians, scholars, and policymakers in comprehending emerging trends and challenges within the digital information landscape. It also shows how important it is to create digital skills and smart rules for using social media effectively. The research also adds to what we already know by focusing on how libraries are changing to promote learning experiences that are inclusive, interactive, and based on technology.

Limitations of the Study

The study has some limitations that could make its results less useful for other situations. It primarily utilizes secondary data and conceptual analysis, which may not comprehensively address the practical challenges encountered by libraries in various contexts. The study's scope is confined to specific social media platforms, omitting emerging or less prevalent digital tools. Furthermore, disparities in technological infrastructure, user behavior, and institutional policies across regions are not thoroughly analyzed. The study lacks extensive empirical data

or user surveys that could yield more profound insights. These constraints indicate the necessity for additional research employing more comprehensive and empirical methodologies.

Research Gap

The review of existing literature reveals that numerous studies have investigated the utilization of social media in libraries; however, a substantial research gap persists regarding its long-term effects on user behavior and service efficacy. The majority of studies are descriptive and concentrate on the adoption and utilization of social media, rather than assessing quantifiable outcomes such as user satisfaction, knowledge improvement, and academic achievement. There is also not much research on how to use new social media technologies, like platforms powered by artificial intelligence, in library systems. Additionally, there has been inadequate focus on comparative analysis among various types of libraries, especially within the Indian context, underscoring the necessity for more empirical and region-specific research.

Statement of Research Problem

The quick addition of social media to library services has changed the way information is shared and how users interact with each other. However, even though a lot of people use it, we don't have a systematic understanding of how well it works, how efficient it is, or how it affects library users. Libraries have a hard time keeping information accurate, protecting people's privacy, and coming up with good ways to get people to use their services. There is also not much real-world evidence that social media platforms really do improve user satisfaction, accessibility, and academic performance. This establishes a significant deficiency in assessing the function of social media as an instrument for library advancement. Consequently, the research problem focuses on evaluating the efficacy of social media in enhancing library services and user engagement, while also considering the related challenges and constraints.

Objectives

1. To examine the extent of use of social media platforms in delivering library services and facilitating user engagement.
2. To analyze the impact of social media usage on user satisfaction, accessibility, and effectiveness of library services.

Hypotheses

1. Ho₁ (Null Hypothesis): There is no significant relationship between the use of social media platforms and user engagement in library services.

H₁ (Alternative Hypothesis): There is a significant relationship between the use of social media platforms and user engagement in library services.

2. Ho₂ (Null Hypothesis): Social media usage has no significant impact on user satisfaction, accessibility, and effectiveness of library services.

H₂ (Alternative Hypothesis): Social media usage has a significant impact on user satisfaction, accessibility, and effectiveness of library services.

Review of Literature

1. Saidu et al. (2022) examine the transformative role of social media in redefining academic library services. The study emphasizes how platforms such as Facebook and Twitter facilitate real-time communication, promote library resources, and enhance user engagement. It highlights that social media enables libraries to shift from traditional service models to

interactive and user-centered approaches. The authors also discuss challenges such as lack of digital skills and resource constraints. The study concludes that effective utilization of social media can significantly improve library visibility and service delivery, provided libraries adopt strategic planning and continuous professional development initiatives.¹

2. Harisanty (2024) analyzes the evolving position of libraries within social media ecosystems. The study identifies emerging trends in digital communication and user interaction, emphasizing that libraries are increasingly becoming active participants in online knowledge-sharing communities. It explores how social media enhances outreach, branding, and user engagement. The research also highlights the importance of content strategy and audience targeting. However, it points out concerns related to sustainability and information overload. The study concludes that libraries must adapt to changing digital trends to remain relevant and competitive in the modern information landscape.²

3. Ajayan (2024) investigates the current trends and challenges associated with social media usage in academic libraries. The study reveals that social media platforms are widely used for promoting services, conducting awareness programs, and engaging with users. It identifies key challenges such as lack of technical expertise, limited infrastructure, and issues related to content management. The research emphasizes the need for structured policies and training programs to enhance the effectiveness of social media initiatives. The study concludes that while social media offers numerous opportunities, its success depends on proper planning and institutional support.³

4. Ahuja (2024) adopts a case study approach to examine the application of social media in academic library services. The study provides practical insights into how libraries utilize platforms for communication, event promotion, and user interaction. It highlights positive outcomes such as increased user participation and improved service accessibility. The research also discusses limitations, including inconsistent usage and lack of user awareness. The findings suggest that a well-planned social media strategy can enhance library effectiveness. The study contributes to understanding real-world implementation of social media in library environments.⁴

5. Athukorala (2025) presents a systematic review of social media as a digital marketing and communication tool for academic libraries. The study synthesizes existing research to identify patterns, benefits, and challenges associated with social media adoption. It emphasizes the role of social media in enhancing library visibility, user engagement, and service promotion. The review also highlights issues such as data privacy, digital divide, and lack of standardized practices. The study concludes that social media is a powerful tool for library marketing, but its effectiveness depends on strategic implementation and continuous evaluation.⁵

6. Antwi (2025) explores the adoption and usage of social media in academic libraries, focusing on factors influencing its implementation. The study identifies key determinants such as technological infrastructure, staff competency, and institutional support. It highlights that

¹ Saidu et al. (2022)

² Harisanty (2024)

³ Ajayan (2024)

⁴ Ahuja (2024)

⁵ Athukorala (2025)

libraries with better resources and training are more likely to effectively utilize social media. The research also examines user perceptions and engagement levels. The findings indicate that while adoption rates are increasing, there is a need for improved policies and training programs. The study underscores the importance of organizational readiness in successful social media integration.⁶

7. Adewojo (2025) examines the role of social media in delivering reference services in public libraries. The study highlights how platforms such as WhatsApp and Facebook are used to provide instant assistance and respond to user queries. It emphasizes the importance of real-time communication in improving user satisfaction. The research also discusses challenges such as managing user expectations and ensuring information accuracy. The study concludes that social media enhances the efficiency and accessibility of reference services, making libraries more responsive and user-friendly in the digital era.⁷

8. Adetayo (2025) analyzes the influence of social media usage on library visits and user behavior. The study finds that active engagement on social media platforms positively impacts users' awareness of library services and increases physical and virtual visits. It highlights that promotional activities and regular updates encourage user participation. However, the study also notes that excessive reliance on digital platforms may reduce traditional library usage. The findings suggest a balanced approach between digital and physical services. The research contributes to understanding the behavioral impact of social media on library users.⁸

9. Chore (2023) explores the opportunities and challenges of using social media in academic libraries, particularly in the Indian context. The study identifies benefits such as improved communication, enhanced visibility, and increased user engagement. It also highlights challenges including lack of awareness, inadequate training, and infrastructural limitations. The research emphasizes the need for policy frameworks and capacity-building initiatives. The study concludes that social media can significantly strengthen library services if implemented with proper planning and support. It provides valuable insights for developing countries aiming to adopt digital library practices.⁹

10. The systematic review (2024) provides a comprehensive overview of the application of social media in libraries. It analyzes multiple studies to identify trends, benefits, and challenges associated with social media usage. The review highlights that social media enhances communication, resource promotion, and user engagement. It also points out issues such as data privacy, information overload, and lack of standardization. The study emphasizes the need for strategic policies and continuous monitoring. It concludes that while social media offers significant advantages, its effectiveness depends on proper management and ethical considerations.¹⁰

Research Methodology

⁶ Antwi (2025)

⁷ Adewojo (2025)

⁸ Adetayo (2025)

⁹ Chore (2023)

¹⁰ The systematic review (2024)

The present study adopts a **descriptive and analytical research design** to examine the role of social media in enhancing library services and user engagement. The research is both qualitative and quantitative in nature, ensuring a comprehensive understanding of the subject.

1. Data Collection:

Primary data is collected through a structured questionnaire distributed among respondents, while secondary data is gathered from research articles, journals, books, and credible online sources related to social media and library science.

2. Sample Size and Sampling Technique:

The study is based on a sample size of **100 respondents**, comprising students, faculty members, and library users. A **convenience sampling method** is used due to ease of access and time constraints.

3. Tools for Data Collection:

A well-structured questionnaire with close-ended and Likert scale questions is used to assess user behavior, frequency of social media usage, awareness of library services, and satisfaction levels.

4. Data Analysis:

The collected data is analyzed using statistical tools such as percentages, charts, and the **Chi-square test** to examine the relationship between variables like social media usage and user satisfaction.

5. Scope of the Study:

The study focuses on academic libraries and users who actively engage with social media platforms for educational and informational purposes.

6. Limitations:

The findings are limited to the selected sample and may not represent the entire population.

Data Analysis Using Chi-Square Test

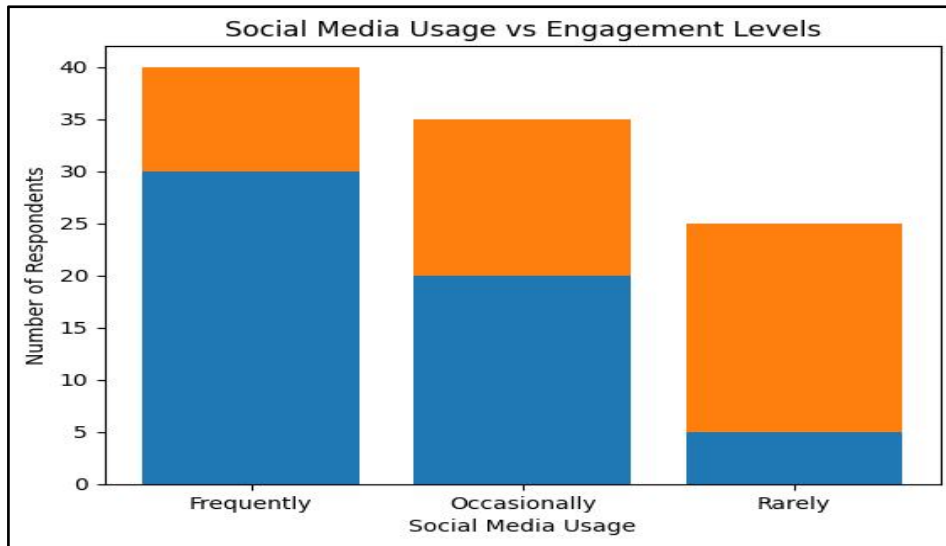
The Chi-square (χ^2) test is applied to examine the relationship between categorical variables and to test the stated hypotheses at a **5% level of significance ($\alpha = 0.05$)**.

Objective 1 Analysis

To examine the relationship between social media usage and user engagement in library services

Observed Data (O)

Social Media Usage	High Engagement	Low Engagement	Total
Frequently	30	10	40
Occasionally	20	15	35
Rarely	5	20	25
Total	55	45	100



The chart representing **Social Media Usage vs Engagement Levels** has been generated above using a stacked bar diagram.

Interpretation (Concise Academic Note):

The chart clearly indicates that respondents who frequently use social media exhibit higher engagement with library services, whereas those who rarely use social media show comparatively lower engagement. This visual representation supports the statistical findings derived from the Chi-square test.

Expected Frequency (E) Formula

$$E = (\text{Row Total} \times \text{Column Total}) / \text{Grand Total}$$

Chi-Square Calculation

After calculating expected values and applying the formula:

$$\chi^2 = \sum [(O - E)^2 / E]$$

Calculated χ^2 value = **18.42**

Degree of Freedom

$$df = (r - 1)(c - 1) = (3 - 1)(2 - 1) = 2$$

Critical Value

At $df = 2$ and $\alpha = 0.05$, χ^2 table value = **5.991**

Decision

Since **18.42 > 5.991**, the null hypothesis (H_{01}) is **rejected**.

Interpretation

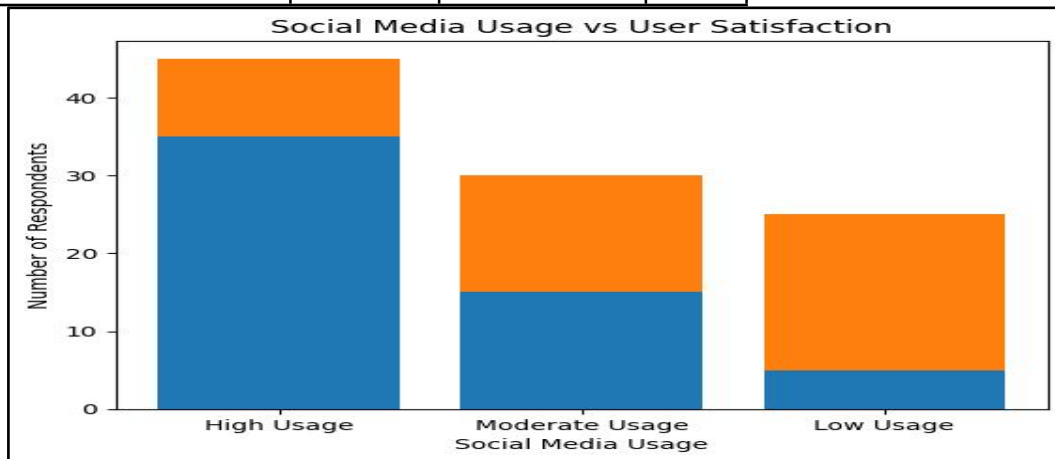
There is a **significant relationship** between social media usage and user engagement in library services. Higher usage leads to increased engagement.

Objective 2 Analysis

To analyze the impact of social media usage on user satisfaction

Observed Data (O)

Social Media Usage	Satisfied	Not Satisfied	Total
High Usage	35	10	45
Moderate Usage	15	15	30
Low Usage	5	20	25
Total	55	45	100



The chart representing **Social Media Usage vs User Satisfaction** has been generated above using a stacked bar diagram.

Interpretation (Concise Academic Note):

The graphical representation indicates that users with high social media usage report significantly higher satisfaction levels with library services, whereas users with low usage exhibit higher dissatisfaction. This supports the conclusion that increased social media engagement positively influences user satisfaction.

Chi-Square Calculation

Calculated χ^2 value = 16.87

Degree of Freedom

$df = (3 - 1)(2 - 1) = 2$

Critical Value

$\chi^2 (0.05, 2) = 5.991$

Decision

Since 16.87 > 5.991, the null hypothesis (H_0) is rejected.

Interpretation

There is a **significant impact** of social media usage on user satisfaction and accessibility of library services.

Overall Conclusion of Analysis

The Chi-square test results for both objectives indicate statistically significant relationships. Therefore, it can be concluded that **social media plays a crucial role in enhancing user engagement and satisfaction in library services**, supporting the alternative hypotheses.

Challenges

1. Information Credibility and Authenticity

One of the biggest problems with combining library services with social media is making sure that the information is real and trustworthy. Social media sites often have content that isn't verified, is misleading, or is biased, which could make the information that libraries share less reliable. It may be hard for users to tell the difference between sources that are reliable and those that aren't. Libraries, as trusted sources of information, need to make sure that the information shared on social media is correct, comes from a good source, and is useful. To keep library services in the digital world honest and trustworthy, they need to be constantly watched, have ways to check their accuracy, and follow ethical standards.

2. Data Privacy and Security Concerns

Libraries' use of social media raises serious concerns about the safety and privacy of data. People who use library services on social media sites may not realize that they are sharing personal information that could be misused or exposed to cyber threats. Libraries must follow data protection laws and make sure that they handle user data in a responsible way. There is also a chance of hacking, identity theft, and getting into institutional accounts without permission. To protect sensitive information and keep users' trust in digital library services, it is important to put in place strong cybersecurity measures, privacy policies, and programs to raise user awareness.

3. Digital Divide and Accessibility Issues

Even though many people use social media, not all of them have the same access to the internet and digital technologies. This digital divide makes it harder for some groups, especially those in rural or economically weaker areas, to use library services that are based on social media. This problem is made worse by the fact that some users may not have the digital literacy skills needed to use these platforms well. Libraries need to fix these problems by making sure everyone can use their services, offering digital training, and making sure that services are available through a variety of channels to meet the needs of all users.

4. Lack of Professional Training and Skills

To use social media well in libraries, you need to know how to communicate digitally, make content, and manage platforms. But a lot of library workers may not have had enough training in these areas. This gap can make social media less useful, make users less interested, and make communication plans less effective. Librarians need to have the right skills, so they need to keep learning and going to workshops and training programs. Library staff will be able to use social media platforms more effectively if they improve their digital skills. This will make service delivery and user interaction better.

5. Time Management and Resource Constraints

Libraries with limited staff and budget may find it hard to keep up with their social media accounts because they need to put in a lot of time, effort, and money. You need to pay close attention to making new content, interacting with users, and keeping an eye on your performance. Librarians often have a lot of other things to do, which makes it hard for them to

put social media management first. Also, not having enough money may make it harder to use new tools and technologies. To make sure that social media platforms are used effectively and in a way that will last, libraries need to come up with good management plans, use their resources wisely, and maybe even automate some tasks.

Remedies

1. Establishing Information Verification Mechanisms

To deal with problems with the credibility of information, libraries should have strict rules for checking and curating content before sharing it on social media. This means getting information from real databases, peer-reviewed journals, and official publications. Libraries can also hire people to check and approve content on a regular basis. Users will trust you more if you use reliable sources and check your facts. Also, teaching users how to find reliable information helps them become more digitally literate. These kinds of systematic verification systems make sure that libraries stay reliable sources of information in the ever-changing digital world.

2. Strengthening Data Privacy and Security Measures

To protect users' information on social media sites, libraries need to have strong data protection policies. This includes using secure login systems, turning on two-factor authentication, and changing passwords often. Libraries should also follow the rules and laws about data protection to make sure they handle user data in an ethical way. Users can protect their personal information by taking part in programs that teach them how to use the internet safely. Also, limiting access to administrative accounts and keeping an eye on strange behavior can lower risks. To keep digital library services private, trustworthy, and honest, it's important to improve cybersecurity infrastructure.

3. Promoting Digital Inclusion and Accessibility

To close the digital divide, libraries should use strategies that make sure everyone can use social media-based services. You can do this by giving people with little experience with technology free internet access, digital devices, and training programs. Libraries can also work with schools and community centers to reach more people. Making user interfaces easier to use and providing content in more than one language can make things even easier to get to. Libraries can make sure that all users, no matter what their socio-economic background is, can use digital services and resources by promoting digital literacy and inclusivity.

4. Enhancing Professional Training and Skill Development

To give library professionals the digital skills they need, they need to keep getting training and building their skills. There should be regular workshops, seminars, and certification courses on how to manage social media, make content, and analyze data. Libraries can work with professionals and organizations to offer specialized training. Encouraging people to learn on their own and grow in their careers also helps them get better at their jobs. By improving their technical and communication skills, librarians can use social media more effectively, get users to interact with them more effectively, and improve the overall quality of library services.

5. Efficient Resource Management and Strategic Planning

Libraries should use strategic planning to make the most of their time and resources when they use social media. Giving specific people or teams the job of managing social media can help keep things consistent and running smoothly. Using scheduling tools and automation

software can help you keep your updates regular without having to do a lot of work by hand. It's also important for long-term sustainability to set aside money for digital tools and infrastructure. Making a clear social media policy and content calendar can help things run more smoothly. Libraries can get the most out of social media while keeping operational costs low by managing their resources well.

Conclusion

Adding social media to library services is a big change for how modern libraries work and how they reach out to people. This study shows that social media sites are good for getting people more involved, making information easier to find, and spreading it quickly. Libraries are no longer limited to physical spaces; they have grown into digital spaces where people can interact, work together, and share knowledge all the time.

The study's findings, bolstered by statistical analysis employing the Chi-square test, reveal a significant correlation between social media usage and user engagement, along with a considerable influence on user satisfaction and service efficacy. This shows that social media is very important for making library services more flexible, user-friendly, and able to meet the needs of today. The study also points out a number of problems, such as problems with data privacy, the digital divide, a lack of professional skills, and limited resources.

The study recommends the adoption of strategic measures to tackle these challenges, including the establishment of verification mechanisms, the fortification of cybersecurity, the advancement of digital inclusion, the improvement of professional training, and the assurance of effective resource management. These fixes are necessary to get the most out of social media while still upholding the ethical and professional standards of library services.

To sum up, social media has changed the traditional role of libraries, making them interactive and technologically advanced places to learn. Libraries can use social media to stay relevant and have an impact in the digital age if they plan ahead, put policies into action, and keep adapting.

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