International Journal of Librarianship and Administration.
ISSN 2231-1300 Volume 17, Number 1 (2026), pp. 1-14

https://dx.doi.org/10.37622/IJLA/17.1.2026.1-14

Evaluating Digital Information Gateways of Public University Libraries in Uttar Pradesh

Urmila Bhardwaj [*] **, Balvant Tandel and Ashwani Kumar**[3]

Department of Library and Information Science
Lovely Professional University, Phagwara–144411, India.
https://orcid.org/0009-0005-8250-0766
Department of Library and Information Science
Lovely Professional University, Phagwara–144411, India
https://orcid.org/0000-0003-3581-1789
Department of Library and Information Science
Central University of Gujarat, Gandhinagar–382030, India.
https://orcid.org/0000-0003-3304-4299

Abstract

This study empirically evaluates public university library websites as digital information gateways, with specific reference to accessibility, responsiveness, and the integration of information dissemination tools. The investigation focuses on state public universities in Uttar Pradesh, India. Using a purposive sampling method, fifteen university library websites were selected for systematic assessment. A structured, content-based evaluation checklist comprising verifiable indicators was developed to operationalize key website features related to access, usability, and digital outreach. Data were analyzed using descriptive statistics and inferential techniques, including a chi-square test of independence, to examine variations in feature availability across website categories. The results reveal significant disparities in the implementation of digital features. While accessibility and responsiveness features are comparatively well established, information dissemination tools—such as blogs, RSS feeds, and interactive social media inte-

[*]Corresponding author: E-mail: rublis314@gmail.com

grations—remain substantially underutilized. The study does not incorporate direct user feedback; however, it offers a replicable evaluation framework and evidence-based insights to inform strategic planning, and policy formulation for enhancement of academic library websites.

Keywords : Library Website; Digital Information; Content Analysis; Public University; Accessibility and Responsiveness.

1. INTRODUCTION

In the today's digital environment, academic libraries serve as essential gateways to scholarly information, research support and knowledge exchange. As physical access to resources becomes increasingly supplemented or completely replaced by online platforms, the effectiveness of a library website directly influences the academic experience of its users. In India, where higher education institutions are witnessing rapid digital expansion, university library websites are expected to provide seamless access, organized information architecture and user-friendly interfaces that support learning, research and service delivery. Uttar Pradesh, being one of the largest contributors to higher education in northern India, hosts many state public universities whose libraries function as intellectual hubs for students, researchers and faculty. Evaluating the performance of their digital platforms becomes critical for ensuring equitable information access and modern service standards. However, despite the growing emphasis on digital transformation, variations persist in terms of design quality, content delivery and the integration of technology-enabled services.

These inconsistencies raise questions regarding the usability and completeness of academic library websites, especially when viewed through the lens of accessibility, responsiveness, and effectiveness in disseminating information. This study therefore examines the library websites of fifteen public universities in India's Uttar Pradesh using a structured content-analysis checklist comprising different verifiable indicators. The evaluation focuses on three core dimensions: Accessibility, Responsiveness, and the Integration of Information Dissemination Tools.

By assessing website content and structure through measurable criteria, the paper identifies prevailing strengths and exposes critical gaps that may hinder effective information flow. The findings offer a framework for improving digital information gateways, ensuring that academic libraries evolve into more inclusive, interactive, and functionally reliable platforms for diverse user groups. The results of this research are not only diagnostic but also forward-looking, laying a foundation for enhancing web-based library services in public universities. Strengthening digital gateways ultimately contributes to better academic engagement, improved dissemination of

institutional knowledge, and a more efficient library ecosystem.

Despite the growing body of research on academic library websites, existing studies are often limited to either central universities, private institutions, or isolated functional aspects such as resource availability or ICT adoption. Empirical evaluations that simultaneously examine accessibility, responsiveness, and digital dissemination practices—particularly within the context of state public universities—remain scarce. Moreover, few studies employ statistical techniques to test whether differences in feature availability across functional categories are systematic rather than incidental. Addressing this gap, the present study adopts a structured, quantitative content-analysis approach to evaluate library websites as integrated digital information gateways.

This study thus positions itself as both an evaluative and suggestive contribution to the evolving discourse on academic library website development in India.

2. REVIEW OF LITERATURE

The evolution of academic libraries from print-dominated repositories to digitally driven information hubs has reshaped the way users access scholarly materials. Library websites have emerged as primary digital contact points, offering remote access to catalogues, e-resources, institutional repositories, support services, and research assistance. As a result, the content quality, navigational design, and accessibility of these websites have become crucial determinants of information flow within academic ecosystems.

The study by Al-Qallaf and Ridha [1] emphasize that a library website must not only present information but also structure it in a way that supports efficient retrieval and decision-making. Similarly, Meesad and Mingkhwan [2] argue that digital library platforms must reflect both functional completeness and user-focused design to remain relevant in modern higher-education settings. Content analysis has been widely adopted as a method to evaluate library website effectiveness because it enables structured examination of feature availability, service integration, and design quality. Studies conducted across universities globally, like Rafiq et al. [3];Azizah and Rahmi [4];Nguyen [5], highlight that while many academic libraries provide digital access, inconsistencies persist in accessibility standards, search tools, responsiveness, and content currency.

In the Indian context, several researchers have applied content auditing frameworks to evaluate university library portals. Ambika and Ganesan [6] observed that many Indian central university library websites lack uniformity in web design, while Singh and Bhakar [7] found that essential user-oriented services are largely absent

from the library websites of NAAC A/A+ women's colleges of Delhi University. These findings underscore the need for systematic assessment frameworks tailored to regional academic settings. Accessibility remains a critical factor in evaluating user-centered web performance. Focusing on colleges in Eastern Uttar Pradesh, Singh [8]emphasizes that access to electronic databases, journals, and reference resources through well-defined collection development strategies plays a vital role in enhancing academic and research activities. In a study of select central university libraries in Delhi and Uttar Pradesh, Khanam and Sohail [9] identify library professionals' attitudes as a critical determinant of ICT implementation, noting that positive attitudes enhance productivity and service efficiency, while negative attitudes act as major barriers. Singh and Bhakar [7] examine human resource management practices in university libraries of Uttar Pradesh and emphasize that effective utilization of library professionals is critical for enhancing service delivery and achieving institutional objectives.

Responsiveness—another key quality dimension—has gained prominence with the rise of mobile-first browsing. Studies indicate that a growing proportion of students access academic resources via smartphones, making multi-device compatibility essential [10]. In addition to accessibility and responsiveness, the integration of information dissemination tools—such as library blogs, social media links, chat support, RSS feeds, and subscribed e-resources—enhances user engagement and fosters interactive academic environments. Rafiq et al. [3] note that digital dissemination tools extend the reach of library services beyond physical boundaries, but adoption rates among traditional academic institutions remain uneven. Recent studies from northern Indian universities echo similar patterns, highlighting strengths in basic informational content yet deficiencies in communication features and technological integration [11].

The review of existing literature reveals substantial scholarly attention to library resources, ICT adoption, human resource management practices, and website evaluation in academic libraries across various regions of India. Several studies have examined digital services, professional attitudes toward ICT, and resource availability in central universities and selected colleges; however, these investigations are largely fragmented and institution-specific. Notably, no comprehensive study has been reported that systematically evaluates the library websites of state public universities in Uttar Pradesh, particularly from a content-driven perspective encompassing accessibility, structure, service delivery, and user-oriented features. The absence of region-specific and institution-focused research limits comparative understanding and evidence-based digital planning for state universities in Uttar Pradesh. Addressing this gap, the present study undertakes a structured evaluation of library websites of state public universities in Uttar Pradesh, thereby contributing empirical insights to strengthen digital information gateways and support informed decision-making in academic

libraries.

3. OBJECTIVES OF STUDY

The present study is guided by the following objectives:

1. To evaluate the content and structural features of library websites of state public universities in Uttar Pradesh.
2. To assess website accessibility and responsiveness for effective user access.
3. To examine the use of information dissemination tools on library websites.
4. To identify strengths and gaps in user-oriented digital services.
5. To propose recommendations for improving library website effectiveness.

4. METHODOLOGY

This study adopts a content-analysis approach to examine the digital performance of library websites of public universities in Uttar Pradesh. A purposive sampling technique was applied to select fifteen state public universities (Table 1), ensuring representation across the region and availability of functional websites during the assessment period. Data was collected through manual observation and verification of website features, focusing specifically on three major dimensions: Accessibility, Responsiveness, and Information Dissemination Tools. The structured checklists were developed to evaluate each dimension using verifiable indicators, refer to Table 2, 3 and 4.

Table 1: List of Sampled Public Universities

Sr. No.	Name of University	Website Link	Establishment
1	University of Lucknow	https://www.lkouniv.ac.in/	1921
2	Dr. B.R. Ambedkar University	https://dbrau.ac.in/	1927
3	D.D. Upadhyay Gorakhpur University	https://ddugu.ac.in	1957
4	Choudhary Charan Singh University	https://www.ccsuniversity.ac.in	1965
5	Chhatrapati S.J.M. University	https://csjmu.ac.in	1966
6	Mahatma Gandhi Kashi Vidyapeeth	https://www.mgkvp.ac.in/	1974
7	Bundelkhand University	https://bujhansi.ac.in	1975
8	Dr. R.M.L. Awadh University	https://www.rmlau.ac.in	1975
9	M.J. Phule University	https://mjpru.ac.in	1975
10	V.B.S. Purvanchal University	https://www.vbspu.ac.in	1987
11	Rajarshi Tandon Open University	http://www.uprtou.ac.in/	1999
12	G. Buddha University, Greater Noida	https://www.gbu.ac.in/	2008
13	Siddharth University	https://www.suksn.edu.in/	2015
14	Prof. Rajendra Singh University	https://prsuniv.ac.in/	2016
15	Jannayak Chandrashekhar University	https://jncu.ac.in/	2016

4.1. Research Instrument: Checklist

The evaluation tool consists of 23 verifiable parameters, distributed across three core feature categories. Each indicator was coded as Yes (1) for presence and No (0) for absence. Scores were computed for individual websites and aggregated to assess comparative performance. The checklist items used for evaluation are given on axis of Figures 1, 2 and 3 respectively.

Table 2: Checklist for Accessibility Features of Library Websites

Sr. No.	Accessibility Features	Yes/No	Remark
1.	Direct link on parent's home page		
2.	Link under other menu		
3.	Consistency across devices		
4.	Consistency across web browsers		
5.	Audio descriptions for visually impaired users		
6.	Website compliance with any accessibility standards		

Table 3: Responsiveness Features of Public University Library Websites

Sr. No.	Responsiveness Features	Yes/No	Remark
1.	Content layout adjusts on different screen sizes		
2.	Availability of search filters		
3.	Webpages loading time (less than 30 seconds)		
4.	Quick loading times under different internet speeds		
5.	Adequate font sizes for readability		
6.	Appropriate scaling of graphics		
7.	Functional back navigation button		
8.	Site search option available		

4.2. Operationalization and Statistical Analysis

The evaluation indicators were operationalized as binary variables, where the presence of a feature was coded as "1" and its absence as "0". This binary structure enabled aggregation across feature categories and facilitated comparative statistical analysis. Descriptive statistics were used to summarize feature availability, while a chi-square test of independence was applied to examine whether differences in feature implementation across website categories were statistically significant. The chi-square test was deemed

Table 4: Social Media and Information Dissemination Tools

Sr. No.	Information Dissemination Tools	Yes/No	Remark
1.	WhatsApp		
2.	Facebook		
3.	X (formerly Twitter)		
4.	Instagram		
5.	YouTube		
6.	LinkedIn		
7.	Blog		
8.	Online meeting platforms (Google Meet etc.)		
9.	RSS feed		
10.	Wikis		

appropriate due to the categorical nature of the data and the adequacy of expected cell frequencies.

5. ANALYSIS AND INTERPRETATION OF DATA

5.1. Data Analysis Procedure

Each library website was visited individually and evaluated using the predefined checklist parameters. The presence or absence of each feature was recorded using a binary scoring format, where "1" indicated the presence of a feature and "0" indicated its absence. Feature-wise and cumulative scores were computed to assess the following aspects:

- Distribution of strengths and weaknesses across the sampled universities
- Percentage availability of features within each website feature category
- Comparative ranking of library websites based on total scores achieved

Descriptive statistical techniques, including frequency counts, percentages, and tabulated outputs, were employed for data interpretation. This approach enabled a clear visualization of variations in digital readiness and usability across public university library websites.

5.2. Accessibility Features

This section assesses the ease with which users can locate and navigate the library website, including accessibility support for diverse user groups. Figure 1 underscores that university library websites show higher adoption of basic technical accessibility indicators, such as consistent accessibility across different web browsers and the presence of accessibility links under menu options. However, the availability of advanced and inclusive features declines progressively, with fewer websites providing direct accessibility links on parent home pages, audio or text-to-speech support for visually impaired users and consistent accessibility across devices. The lowest level of implementation is observed for explicit mention of compliance with recognized accessibility standards, suggesting limited formal commitment to accessibility guidelines. Overall, the findings reveal that while foundational accessibility practices are present, comprehensive and standards-based accessibility remains largely underdeveloped across university library websites.

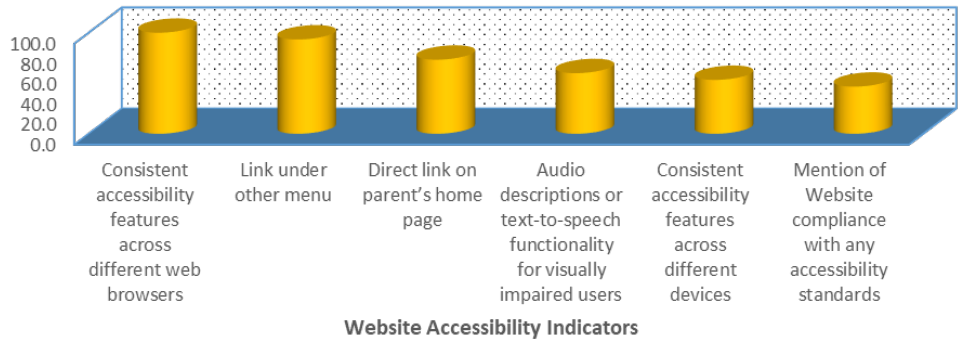

Figure 1: Websites accessibility across universities

5.3. Library Website Responsiveness

This component measures adaptability of website design, interface responsiveness, and functional performance across devices and connection speeds. The distribution pattern in Figure 2 reveals that most university library websites demonstrate strong implementation of basic responsiveness features, particularly adequate font sizes, appropriate graphic scaling and adaptable content layouts across different screen sizes. Functional elements such as site search options and back-navigation buttons

are also widely available, indicating attention to core usability requirements. Though, performance-related features show comparatively lower adoption, with fewer websites achieving faster page loading speeds and consistent quick loading times across varying internet speeds. The least implemented indicator is the availability of filter options for search results, suggesting limited support for advanced user interaction and efficient information retrieval. In general, while foundational responsiveness features are well addressed, optimization for performance efficiency and enhanced search functionality remains an area for improvement.

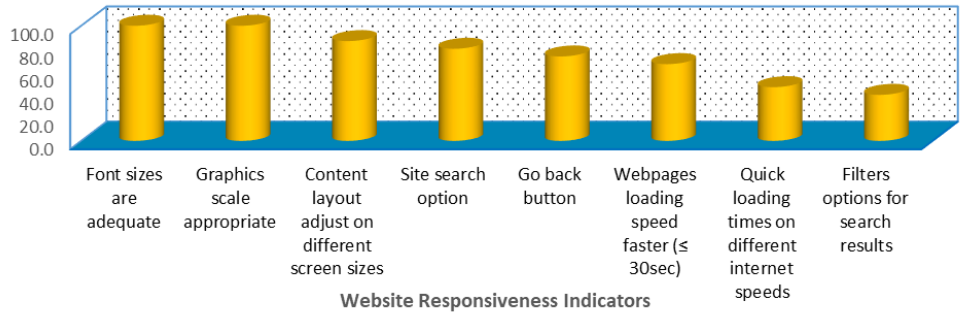

Figure 2: Websites responsiveness across universities

5.4. Information Dissemination Tools

This section evaluates the presence of communication and outreach tools that support interaction, announcements, and resource sharing.

Figure 3 demonstrates that social media platforms such as Facebook, X (formerly Twitter), and YouTube are the most commonly used information dissemination tools on university library websites, indicating a preference for widely popular platforms for outreach and communication. Professional and visual platforms like LinkedIn and Instagram are moderately adopted, while online meeting tools such as Google Meet, Zoom, and MS Teams show limited integration. In contrast, interactive and content-driven tools—including WhatsApp services, blogs, wikis, and RSS feeds—are minimally represented. This pattern suggests that although libraries utilize mainstream social media for visibility, they underutilize dynamic and user-engagement–oriented dissemination tools, thereby limiting continuous interaction, real-time updates, and personalized information delivery.

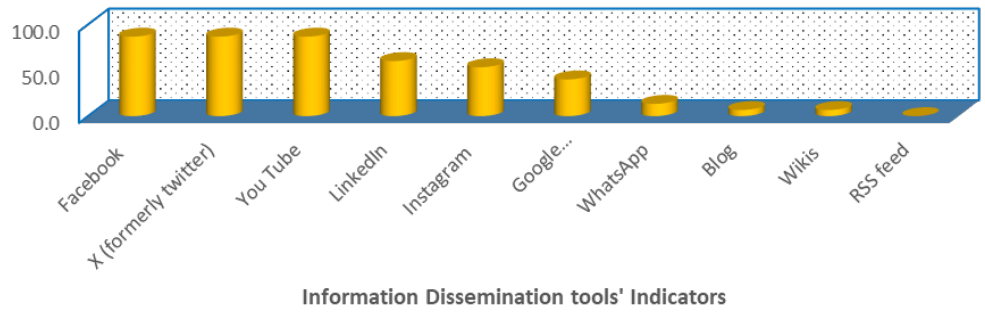

Figure 3: Information dissemination and social media tool integration on websites across universities

5.5. Feature Availability and Chi-Square Analysis

A chi-square test of independence was conducted to examine whether the availability of website features differed across three categories of library website characteristics: Website Accessibility, Website Responsiveness, and Information Dissemination Tools. The results shown in Table 6 revealed a statistically significant association between feature category and availability, $\chi^2(2, N = 360) = 30.78$, $p < .001$, indicating that the distribution of "Yes" and "No" responses varied significantly across the three feature groups. The likelihood ratio test further supported this association, with $LR\,\chi^2(2) = 30.93$, $p < .001$. A significant linear-by-linear association was also observed, $\chi^2(1) = 21.66$, $p < .001$, suggesting a systematic trend in feature availability across categories. All expected cell frequencies exceeded the minimum requirement, with the smallest expected count being 35.25, confirming that the assumptions of the chi-square test were fully satisfied.

The findings indicate meaningful differences in the implementation of website features across public university library websites. Website Accessibility and Website Responsiveness features were more widely available than expected, reflecting greater institutional emphasis on usability, mobile compatibility, and compliance with basic accessibility standards. In contrast, Information Dissemination Tools—including blogs, social media integrations, wikis, and RSS feeds—were substantially underrepresented and contributed most to the observed chi-square effect. This pattern suggests that while academic libraries prioritize foundational website functionalities, they lag in adopting dynamic and interactive tools that support communication, outreach, and user engagement.

Table 5: Feature × Availability Cross-Tabulation of Library Website Characteristics

Library Website Features		Availability		Total
		No	Yes	
Accessibility	Count	26	64	90
	Expected Count	35.3	54.8	90
Responsiveness	Count	31	89	120
	Expected Count	47.0	73.0	120
Information Dissemination Tools	Count	84	66	150
	Expected Count	58.8	91.3	150
Total	Count	141	219	360
	Expected Count	141.0	219.0	360

Table 6: Chi-Square Test Results for Feature Availability Across Website Categories

Test Statistics	Value	df	Asymp. Sig. (2-sided)	Result
Pearson Chi-Square	30.783[a]	2	.000	Sig.
Likelihood Ratio	30.931	2	.000	Sig.
Linear-by-Linear Association	21.659	1	.000	Sig.

[a] 0 cells (0.0%) have expected counts less than 5. The minimum expected count is 35.25.

These results confirm that feature implementation is not uniformly distributed across website categories, indicating differentiated institutional priorities in digital library development.

6. FINDINGS AND CONCLUSION

This study demonstrates a significant relationship between feature type and availability across university library websites, indicating disparities in the implementation of essential digital components. While foundational features related to accessibility and responsiveness are comparatively well represented, the limited integration of information dissemination tools highlights important gaps in digital outreach and user-centric services. These findings underscore the need for libraries to move beyond structural website improvements and embrace dynamic, communication-oriented features that align with evolving digital behaviors and expectations. Strengthening such tools will not only enhance user experience but also improve the visibility, relevance, and impact of university libraries in the digital environment. Continued evaluation and strategic development of library websites remain critical for supporting academic communities and ensuring equitable access to information.

7. RECOMMENDATIONS

Based on the findings of this study, it is recommended that university libraries prioritize the systematic enhancement of their digital platforms by adopting a more balanced approach to website feature development. While accessibility and responsiveness features are relatively well implemented, libraries should invest in strengthening Information Dissemination Tools such as social media integrations, RSS feeds, blogs, and wikis. These tools are essential for improving real-time communication, increasing user engagement, and supporting knowledge sharing. Libraries should also develop clear digital strategies that promote consistent implementation of interactive features across all institutions. Regular website reviews, user experience testing and regular content updates are advised to maintain website quality.

Institutional policy frameworks should explicitly incorporate digital outreach benchmarks, ensuring that information dissemination tools receive equal strategic emphasis alongside accessibility and responsiveness features.

8. LIMITATIONS OF STUDY

This study is limited to assessing the presence or absence of predefined indicators observable on library websites during the data collection period. It adopts a feature-based, user-oriented evaluation and does not incorporate direct user surveys, usability testing, or experiential feedback. Additionally, the analysis is confined to a selected sample of state public universities in Uttar Pradesh, which may limit the generalizability of the findings to other institutional or regional contexts. The evaluation focuses on visible website features and does not assess the actual quality, effectiveness, or user satisfaction associated with these services. Future research may extend this framework to other Indian states, integrate user-experience and perception-based metrics, and employ multivariate or longitudinal approaches to examine the evolution of academic library websites over time.

ACKNOWLEDGMENTS

We gratefully acknowledge the valuable inputs and constructive suggestions provided by the reviewers, which significantly improved the quality of this manuscript.

DECLARATIONS

Funding

The authors declare that no funds, grants, or other support were received during the preparation of this manuscript.

Competing Interests

The authors declare that they have no relevant financial or non-financial competing interests to disclose.

Ethics Declaration

Not applicable.

Consent for Publication

All authors have read and approved the final version of the manuscript and consent to its publication.

Data Availability

The datasets generated and/or analyzed during the current study are available from the corresponding author upon reasonable request.

REFERENCES

[1] Al-Qallaf, C.L., Ridha, A.: A comprehensive analysis of academic library websites: Design, navigation, content, services, and web 2.0 tools. International Information and Library Review **51**(2), 93–106 (2019) https://doi.org/10.1080/10572317.2018.1467166

[2] Meesad, P., Mingkhwan, A.: User experience and engagement in smart digital libraries. In: Libraries in Transformation, pp. 273–326. Springer, Cham (2024). https://doi.org/10.1007/978-3-031-69216-1_8

[3] Rafiq, S., Ashiq, M., Ur Rehman, S., Yousaf, F.: A content analysis of the websites of the world's top 50 universities in medicine. Science and Technology Libraries

40(3), 260–281 (2021) https://doi.org/10.1080/0194262X.2021.1889446

[4] Azizah, S.N., Rahmi: Academic librarian perceptions of facilities and services for persons with visual impairments. Journal of Academic Librarianship **49**(6), 102791 (2023) https://doi.org/10.1016/j.acalib.2023.102791

[5] Nguyen, M.: Use of social media by academic libraries in australia: Review and a case study. Journal of the Australian Library and Information Association **72**(1), 75–99 (2023) https://doi.org/10.1080/24750158.2023.2168465

[6] Ambika, C.A., Ganesan, P.: Central university library websites in india: Web content analysis. Library Philosophy and Practice, 1–15 (2021)

[7] Singh, R.D., Bhakar, P.R.: Human resource management practices in university libraries of uttar pradesh: A comparative study of allahabad university and aligarh muslim university. Cuestiones de Fisioterapia **53**(3), 271–288 (2024) https://doi.org/10.48047/CU

[8] Singh, S.: Library resources and their contributions in academic study and research: A study from the colleges of eastern uttar pradesh. Library Progress International **43**(1), 87–100 (2023) https://doi.org/10.48165/bpas.2023.43.1.10

[9] Khanam, Z., Sohail, M.: Attitude of library professionals towards information communication technology in the select central university libraries of delhi and uttar pradesh. DESIDOC Journal of Library and Information Technology **44**(1), 1–9 (2024) https://doi.org/10.14429/djlit.44.1.19186

[10] Parlakkiliç, A.: Evaluating the effects of responsive design on the usability of academic websites in the pandemic. Education and Information Technologies **27**(1), 1307–1322 (2022) https://doi.org/10.1007/s10639-021-10650-9

[11] Bhardwaj, U., Kumar, J., Kumar, A.: Improving library services with social media through content-driven website research. In: Digital Transformation in Libraries from Collections to Connections, pp. 84–91. Harper Publications, New Delhi (2025)