A CONTENT ANALYSIS OF LIBRARY WEBPAGES OF INDIAN ARCHITECTURE AND PLANNING INSTITUTES: A SELECT STUDY OF NIRF RANKED TOP THIRTY INSTITUTIONS

Author(s):

Oak, Meenal Kedar[1], Chogale, Dhiraj Kiran[2]

[1]Professor, MES's Institute of Management and Career Courses, Pune, India – 411 038; Research Guide, Savitribai Phule Pune University, Pune Research Centre: Abasaheb Garware College, Pune, India – 411 004

[2]Research Scholar, Savitribai Phule Pune University, Pune Research Centre: Abasaheb Garware College, Pune, India – 411 004

[1]`mko.imcc@mespune.in`
ORCID: 0000-0002-6084-303X

[2]`dhirajchogale1791@gmail.com`
ORCID:0000-0002-6210-4855

Abstract: ICT has revolutionized the process and the nature of product delivery in every service sector and the libraries are not exceptional for it. The new digital developments with the advanced technological usages have provided new vistas for website developments with the provision of electronic full-text databases of e-journals and e-books with virtual reference. The usage of web technologies in the provision of e-resources to the user segments by academic libraries is significant and considered one of the crucial elements in effective service provision. Academic Library Web pages are designed and consistently keeping pace with the advancements in the World Wide Web since its inception. Libraries of professional academic institutions like architecture carry different features due to the disciplinary variation and so the focus of the architectural Institutional libraries on the library webpages is always given as a tool to provide the rare and precious electronic and digitized scanned e-collection to the architectural researchers, students, and the faculty. The present work is a select study of the library web pages of the top thirty architectural and planning institutes in India, as ranked by the National Institutional Ranking Framework (NIRF) in 2023. The study is a comprehensive content analysis conducted to evaluate the accessibility and informational richness of library webpages in select higher education institutions, with a focus on architecture and planning disciplines. The analysis includes criteria such as navigation features, available resources, digital services, and user engagement elements. The findings shed light on the current state of library webpage development and provide insights for enhancing digital library services and user experiences in academic settings.

Keywords:Content Analysis, Library Webpage, Architecture and Planning Institutions, India, NIRF, NIRF Ranking, Domain Extension.

1. Introduction

Academic libraries in the digital age mostly rely on their websites to share information, interact with library users, and highlight their educational offerings. The content and design of an architectural and planning institute's website are crucial in influencing public opinions and drawing in potential students, teachers, and collaborators. This is because the institutes' multidisciplinary character necessitates effective communication of their programs, research, and facilities. In light of this, this research study conducts a thorough content analysis of the select library websites of the top thirty Indian institutes of architecture and planning, ranked by the National Institutional Ranking Framework (NIRF) for 2023. The website of the library acts as an interface to the academic services and resources offered by the organization, demonstrating its dedication to intellectual research, scholarship, and information sharing.

This study aims to identify the prevalent trends, practices, and areas for improvement in the digital representation of library resources and services within the architecture and planning education sector through a methodical analysis of the content, structure, and functionality of these web pages.

2. NEED OF THE STUDY

This study intends to offer important insights into how architecture and planning institutes use their library webpage to support teaching, learning, and research activities by closely examining elements like information design, accessibility, search capabilities, resource diversity, and user experience. The study also addresses the context of the larger conversation about digital technologies, library services, and higher education in India with special reference to Architecture and Planning. It is the need to clarify the implications of user-centered design principles, resource accessibility, and digital literacy for improving the efficacy and influence of library web pages in academic settings. The major need of this study is to influence institutional policies, technological investments, and pedagogical techniques that encourage an innovative, collaborative, and information-literate culture in architecture and planning education in India by bridging the theory-practice divide.

2.1 Architectural and Planning Education and Institutions in India

Architecture discipline is a multidisciplinary domain focusing on art, architecture, engineering, management science etc. The architectural education has thus also evolved to incorporate the multidisciplinary aspects from the varied areas of knowledge. As far as Indian Architectural education is concerned, formal architectural and planning education is imparted across a variety of institutions in India, including government, autonomous and private institutions offering diploma, undergraduate, postgraduate, and doctoral programs. These institutions are governed and approved by the Council of Architecture (CoA), India, which prescribes minimum standards of architectural education, regulates professional practice, and ensures the quality and relevance of curricula in alignment with the Architects Act, 1972 (Council of Architecture, 2024). The programs aim to prepare professionals capable of addressing complex challenges in the built environment, promoting sustainable design, and contributing to urban and rural development in accordance with national and global priorities.

2.2 National Institute of Ranking Framework (NIRF), India

The MHRD (currently the Ministry of Education) India endorsed the National Institutional Ranking Framework (NIRF) and introduced it on September 29, 2015, under the auspices of the Honorable Minister of Human Resource Development. This framework establishes a system for evaluating institutions nationwide. It is based on recommendations and a comprehensive understanding put forth by a Core Committee appointed by the MHRD Government of India. The criteria encompass key areas such as Teaching, Learning and Resources, Research and Professional Practices, Graduation Outcomes, Outreach and Inclusivity, and Perception (National Institutional Ranking Framework, 2024).

3. REVIEW OF LITERATURE

Prominent databases have been searched for literature on the subject of website or web page content analysis. It comes to light that several studies have been conducted on library websites utilizing various methodologies, such as content analysis, content assessment, design and trends, and library portal usage. Although studies in various contexts are common, there has been a scarcity of research conducted specifically on the websites of architectural institutes libraries.

Webometric analysis was performed by Bakkiyaraj & Kalidasan (2023) on websites of physical education courses offered by multi-faculty profile institutions of NCTE in India. Study conducted by Adhikary et. al. (2022) aims to analyze the information provided by ten West Bengal tourism websites. They evaluated these websites based on parameters like authority, purpose, coverage, currency, objectivity and accuracy. Bulla et. al., (2022) studied webometric analysis of selected Architecture Engineering colleges in Karnataka state of India. The authors collected data utilizing Google search engine

and SEO tools to assess the effectiveness of website links. Gupta & Walia (2022) examined the library websites of chosen state and central universities in Delhi, the capital city of India, to determine how efficiently these libraries are utilizing their websites to disseminate library-related information. Madhu & Kannappanavar (2022) conducted evaluative study on seven library websites of National Institute of Pharmaceutical Education and Research (NIPER's) using content analysis method. Comparative study of research outcomes of NIRF ranked universities has been studied by Roy (2022), research focuses on general universities governed by Section 12_B of the UGC Act, 1956, situated in the state of West Bengal. Study specifically examines their research outcomes indexed in the SCOPUS database and their rankings in the NIRF 2022.

Brown (2021) investigated the accessibility of Five Mississippi Gulf Coast public library website homepages using free browser-based accessibility tools, evaluating compliance with three levels: A, AA, and AAA. Das & Gurey (2021) analyzed the web content of 26 state universities in West Bengal, assessing aspects such as user-friendliness, navigation, currency, relevancy, and applicability. NIRF ranked webpages of law institutes in India studied by Dhule (2021). Johnson & Ramasamy (2021) performed a comparative analysis of content and usability across the homepages of the top 10 Indian Institutes of Technology (IITs) libraries, as per the National Institutional Ranking Framework (NIRF) 2020 rankings. Lee et. al. (2021) conducted a content analysis of library guides from English-speaking universities, categorizing included resources and their relevance to different stages of the systematic review process. They employed a chi-square test to determine the statistical significance of resource distribution within each systematic review stage. The content of websites from the world's top 50 universities in the field of medicine, as per the QS World University Rankings, was examined and analyzed by Rafiq. et. al. (2021). Sahu & Sonkar (2021) conducted a similar content analysis focusing on the library websites of medical institutions ranked by NIRF (National Institutional Ranking Framework) in India. Content analysis of the twenty library web pages of the polytechnic college websites in Kerala was studied by Surendran (2021), data were collected through a well-structured check list from the randomly selected polytechnic institutions. A joint study by Verma & Pathak (2021) analyzed websites of Indian Council of Social Science Research (ICSSR) Institutes with section reference to design trends. Wani (2021) conducted a content analysis of library websites from 18 Indian Institutes of Management (IIMs), examining various aspects of their content.

Héroux et. al. (2020) explored the utilization of web content analysis to construct innovation indicators, drawing insights from the texts of 79 Canadian nanotechnology and advanced materials firms websites. Their approach included a classic questionnaire-based survey aligned with the Oslo Manual guidelines. Kumar & Yadav (2020) conducted an evaluative study on the effectiveness of university library portals of top Ten Indian Universities placed in the 2019 version of National Institutional Ranking Framework (NIRF). The study assesses the accessibility, accuracy, currency, and user-friendliness of ten selected library websites affiliated with colleges under the University of Delhi has been conducted by Rahman & Batcha (2020). Saloi (2020) confined web based study focuses solely on university libraries in Assam that have their own dedicated library pages or websites.Vaughan & Warlick (2020) explored the content of library webpages, this study delves into the provision of Accessibility and Disability Services within the four-year academic libraries of Virginia.

Devi & Verma (2018) conducted an extensive analysis of library webpages from Indian Institutes of Technology (IITs) and National Institutes of Technology (NITs), employing 172 parameters for evaluation.

Mani et. al. (2017) analysed the web pages of Engineering colleges of Tirunelveli District of Tamil Nadu. Yoon & Schultz (2017) examined research data management services in academic libraries across the United States, analyzing 185 library websites with a focus on services, information, education, and network offerings.

Beerappa & Sheshadri (2016) conducted a

web link analysis of 12 major documentation centers in India, revealing a total of 71,577 web pages across these centers. Sarjoon & Humayoon (2016) explored the websites of major research institutions in the Thiruvananthapuram district; the study underscored the importance of establishing independent websites for research libraries to ensure the delivery of efficient and effective facilities for their users. Savitha (2016) investigated the content available on 12 Deemed University Library websites in Karnataka state.

The web presence of medical colleges in Kerala was analyzed by Divya & Vijayakumar (2015) using the content analysis method.

Haridasan & Uwesh (2014) examined and evaluated the content of library websites belonging to central universities in India, assessing their contribution to the global knowledge base.

It is observed that the major criteria utilized by the webpage evaluation studies are content, accessibility, usability, and effectiveness of websites across different sectors. The evaluation methods utilized are content analysis, accessibility evaluations, comparative assessments, and webometric analysis. These evaluations predominantly target educational and research institutions in both Indian and international contexts. Key aspects scrutinized include authority, purpose, coverage, currency, objectivity, accuracy, user-friendliness, navigation, and content relevance. The web evaluation studies offer valuable insights into the ways of institutions leveraging their websites to disseminate information and cater to their users needs effectively. The literature review reveals a significant disparity between international and national-level studies in terms of content analysis of websites. While there are 5 international-level studies focusing on this aspect, there are 24 national-level studies dedicated to the same. This indicates a greater emphasis on examining website content within the national context compared to the international one.

4. OBJECTIVES OF THE STUDY

The specific objectives of the study are:

- To measure the web availability accessibility of the library web pages.
- To investigate the accessibility compliance of library web pages.
- To identify the domain structure of library webpages.
- To find out the services and facilities offered on the library web pages.
- To know about the web 2.0 applications provided on library webpages for promoting LIS products and services.
- To know about value-added services provided through library webpages.
- To explore and assess the research support resources offered on library websites.

5. SCOPE AND LIMITATION OF THE STUDY

The research focuses on analyzing the content of the library websites and portals of Architecture and Planning institutes ranked by NIRF. Specifically, it focused on the top thirty institutions listed in the 2023 version of NIRF, as recognized by the Ministry of Human Resource Development, Government of India, for evaluating colleges, universities, and other higher educational institutions in the country. Out of 105 participating institutions, the top 30 were selected to ensure a focused and detailed analysis. This selection aims to narrow down the scope of the study and enhance the accuracy and conciseness of the results. The study's parameters include the name of the institutions, website links of institutions' libraries, and their respective NIRF ranks, which are detailed in Appendix 1.

6. METHODOLOGY

The research methodology encompasses the selection of the top thirty architecture and planning institutes in India based on the NIRF 2023 rankings. The information of the NIRF 2023 ranked Architecture and Planning institutions were collected from NIRF website (NIRF Ranking, 2024). The content analysis process involves systematic examination and categorization of content elements present on the library web pages. The checklist was developed using existing literature and prior studies for evaluation based on the objectives of this study. 50 criteria under the 6 headings were enumerated to analyze the websites.

Table 1: Criteria for analysis of Websites of NIRF 2023 ranked Architecture and Planning institutions

I	**Availability of library website**	1	Domain-wise distribution of websites
		2	Accessibility of library webpage link
		3	Web presence of library webpage
II	**General information about library**	4	About Library
		5	Library Working Hours
		6	Library Rules
		7	Library Staff
		8	Library Committee
		9	News/Updates
		10	Membership details
		11	Library user guide
		12	Photo gallery
		13	Contact us
III	**Library collection**	14	Books (Print)
		15	e-Books
		16	Periodicals
		17	e-Periodicals
		18	e-Database
		19	Audio/Video/CD/DVD
		20	Open Educational Resources
		21	Thesis/Dissertations
		22	Standards
		23	Archives/Manuscripts
IV	**Library services and facilities**	24	Circulation of Books
		25	Bibliographic Service
		26	Inter Library Loan
		27	Institutional Repository
		28	Search facility
		29	Reprographic Services
		30	ICT Infrastructure
		31	Reference Service
		32	OPAC/Web OPAC
		33	Remote Access
V	**Application of Web 2.0 and other innovative tools**	34	Email/webmail
		35	Ask a Librarian
		36	Comment facility
		37	Visitor count
		38	FAQs
		39	Facebook page
		40	Instagram
		41	Twitter
		42	Virtual tour
		43	RSS Feeds
VI	**Value-added and Research Support services**	44	User Orientation
		45	Book Recommendations
		46	Library App

	47	Newsletter of Library
	48	Plagiarism Checker
	49	Citation tools
	50	Grammar checker

In this study, traditional website evaluation criteria such as design elements and credibility are omitted, with a greater focus placed on the website's content. Utilizing this checklist, the websites of selected NIRF ranked 2023 Architecture and Planning institutions were scanned thoroughly and features were noted from February 15th, 2024 to July 15th 2024.

Using the prepared checklist, the contents of websites collected for this study were categorized into two groups to determine their presence (1) or absence (0), ensuring bias-free and straightforward analysis. The selected library websites were evaluated and analyzed based on the scoring points derived from this approach. The collected data was analyzed utilizing Microsoft Excel. The criteria outlined in Table 1 were enumerated for the analysis.

7. ANALYSIS & INTERPRETATION OF DATA

The data collected based on the above criteria is analyzed below to study the availability of the webspace for the architectural institutional libraries and the facilities provided by these libraries from the webspace in the present scenario where the users primarily use the ICT-based devices for accessing the information.

7.1 Domain-wise distribution of websites

The data from Table 2 illustrates the domain name preferences of Architecture and Planning institutions ranked in NIRF 2023. Accounting for 70% (21), preferred the ".ac.in" domain extension for their websites. Conversely, only a small fraction, about 10% (3) each, opted for ".edu" and ".edu.in" extensions. The usage of ".in" and ".org" extensions was notably less, with only 67% (26) and 3.33% (1) of institutions respectively employing them.

Table 2: Domain extension of website

Domain extension	No. of institutions	Percentage
ac.in	21	70
.edu	3	10
.edu.in	3	10
.in	2	6.67
.org	1	3.33
Total	30	100

7.2 Accessibility of library webpage/website link

The data presented in Table 3 indicates the distribution of library webpage links across different sections of the websites of Architecture and Planning institutions. A majority of institutions, 43.33% (13) institutions, have their library webpage links accessible under the facilities page. 16.67% (5) institutions have these links accessible under the academics page. For 13.33% (4) institutions, the library page links are accessible under the resources page. About 10% (3) each have made their library page accessible under both the campus and home pages respectively. 6.67% (2) institutions has placed their library page links under the students' service page.

7.3 Web presence of library webpage

Libraries are essential hubs for both print and digital resources, offering a wide array of services to users through various channels. Among these channels, library websites or webpages play a vital role in providing easy access to information for patrons, even those located remotely, all within a single online platform. According to table 4 a significant majority, comprising 66.67% (20) institutions' library webpage is embedded within the institution's main website, facilitating seamless access to library resources alongside other institutional information. On the other hand, 33.33% (10) institutions maintain a distinct website exclusively dedicated to library services.

Table 3: Accessibility of link

Accessibility of link	No. of institutions	Percentage
Link under facilities	13	43.33
Link under academics	5	16.67
Link under resources	4	13.33
Link under campus	3	10
Link to home page	3	10
Link under students' services	2	6.67
Total	30	100

Table 4: Web presence of website

Web presence of library webpage	No. of institutions	Percentage
a space in another webpage	20	66.67
Separate website	10	33.33
Total	30	100

7.4 General information about the library

Table 5 presents findings on general information accessibility across architecture and planning institutions' library websites, based on ten identified criteria. Notably, all websites provided about library section on their website/webpage. Library rules were available on 96.67% (29) of websites. News/updates were accessible on 93.33% (28) of websites. Membership details were offered by 93.33% (28) of institutions. 90% (27) offering working hours details and 90% (27) offered library contact details. Information about library staff was provided by 86.87% (26) of institutions. A photo gallery was provided by 80% (24) of institutions. Library user guides were limited, available on only 40% (12) of websites. Only 36.67% (11) disclosed details about the library committee. These findings

underline variations in information provision across architecture and planning institutions' library websites, indicating areas for improvement in transparency and accessibility.

Table 5: General information about the library

Criteria	No. of institutions	Percentage
About Library	30	100
Library Rules	29	96.67
News /Updates	28	93.33
Membership details	28	93.33
Library Working Hours	27	90
Contact us	27	90
Library Staff	26	86.87
Photo Gallery	24	80
Library user guide	12	40
Library Committee	11	36.67

7.5 Library collection

The primary role of every library is to procure a diverse and extensive collection of resources, catering to the needs of its clientele, encompassing both physical and digital formats. Table 6 outlines the availability of information about library resources on the websites of architecture and planning institutions included in the study. Notably, information about library collections such as printed books, e-books, periodicals, e-periodicals, and e-databases was available on all 30 websites. Information about open educational resources accessible on 96.67% (29) library websites. Similarly, thesis/dissertation information was available on 96.67% (29) of websites. Details regarding audio/video/CD/DVD resources were provided by 90% (27) of websites. However, information about standards was comparatively less prevalent, found on only 33.33% (10) of websites. Likewise, archives/manuscript collection information was

available on only 20% (6) of websites, indicating areas where information provision could be enhanced across architecture and planning institutions' library websites.

Table 6: Library Collection

Criteria	No. of institutions	Percentage
Books (Print)	30	100
e-Books	30	100
Periodicals	30	100
e-Periodicals	30	100
e-Database	30	100
Open Educational Resources	29	96.67
Thesis /Dissertations	29	96.67
Audio /Video/ CD /DVD	27	90
Standards	10	33.33
Archives /Manuscripts	6	20

7.6 Library services and facilities

Library services and facilities are integral components of any library's functioning, aimed at enhancing user experience and access to resources. As depicted in Table 7, the architecture and planning libraries selected for this study provide comprehensive information about their services and facilities on their respective websites. Notably, all libraries offer details regarding circulation of books, bibliographic services and ICT infrastructure. Reference services are outlined on 96.67% (29) of websites. Information about website search facilities is accessible on 93.33% (28) of websites. OPAC/Web OPAC facilities are available on 90% (27) of websites. 76.67% (23) developed institutional repositories. Reprographic services are detailed on 73.33% (22) of websites. Additionally, remote access facilities are provided by 70% (21) of library websites. Interlibrary loan facilities are available on 63.33% (19) of library websites. Architecture and planning libraries providing a wide array of services and facilities, ensuring enhanced

accessibility and usability for their users.

Table 7: Library services and facilities

Criteria	No. of institutions	Percentage
Circulation of Books	30	100
Bibliographic Service	30	100
ICT Infrastructure	30	100
Reference Service	29	96.67
Search facility	28	93.33
OPAC/Web OPAC	27	90
Institutional Repository	23	76.67
Reprographic Services	22	73.33
Remote Access	21	70
Inter Library Loan	19	63.33

7.7 Application of Web 2.0 and other innovative tools

The integration of Web 2.0 tools and innovative features on library websites can significantly enhance their utility and engagement. Table 8 outlines the utilization of such tools in architecture and planning institutes' library websites included in this study. Notably, email/webmail facilities are prevalent, with 96.67% (29) of institutions offering this service. Ask a librarian tools are provided by 23.33% (7) of websites, while comment facilities are available on 20% (6) of websites. Visitor count features are implemented by 20% (6) of websites, and FAQs tools are present on only 13.33% (4) of websites. Dedicated Facebook pages are found on 4 (13.33%) of websites, and a smaller proportion, 10% (3) each, have Instagram and Twitter accounts. Virtual tours are provided by 10% (3) of libraries. Additionally, only 3.33% (1) of website offer RSS feeds, exemplified by IITK. The respondent libraries and Information Centers utilizing a varying degree of adoption of Web 2.0 and innovative tools among architecture and planning institutes' library

websites, indicating opportunities for further enhancement in digital engagement and user interaction.

Table 8: Application of Web 2.0 and other innovative tools

Criteria	No. of institutions	Percentage
Email/webmail	29	96.67
Ask a Librarian	7	23.33
Comment facility	6	20
Visitor count	6	20
FAQs	4	13.33
Facebook page	4	13.33
Instagram	3	10
Twitter	3	10
Virtual tour	3	10
RSS Feeds	1	3.33

7.8 Value-added and Research Support services

Value-added services and research support services play a crucial role in enhancing user experience and facilitating research endeavors within library settings. Table 9 presents information on these services offered by architecture and planning institutes' library websites included in this study. User orientation information is provided by 76.67% (23) of websites. Regarding research support services, 66.67% (20) of websites provide information about plagiarism checker software. 60% (18) offer facilities for book recommendations by users. 53.33% (16) of libraries offer grammar checker facilities, contributing to the enhancement of research quality and academic integrity. 46.67% (14) websites support citation tools. Additionally, 16.66% (5) of libraries publish newsletters specifically dedicated to library updates. Notably, two libraries offer a dedicated library app, namely CEPT and NITH. In India, architectural research is getting focus with the increased number of researchers in the discipline. It is found that the respondent libraries are rendering the required research support services through the library webpage.

Table 9: Value-added and Research Support services

Criteria	No. of institutions	Percentage
User Orientation	23	76.67
Plagiarism Checker	20	66.67
Book Recommendations	18	60
Grammar checker	16	53.33
Citation tools	14	46.67
Newsletter of Library	5	16.66
Library App	2	6.66

8. RESULTS AND DISCUSSIONS

Based on the collected data from NIRF ranked Architecture and Planning institutions' library websites, the following major findings were noted with respect to the criteria decided for this study:

Domain Extension (Table 2):

- The majority of Architecture and Planning institutions, accounting for 70% (21) of the total, prefer the ".ac.in" domain extension for their websites. This indicates a strong preference among these institutions for a domain extension associated with academic and educational institutions in India. This finding corroborates the observation by Bakkiyaraj & Kalidasan (2023), they noted academic domain extensions used as top-level among websites of Physical Institutions in India.
- Very few institutions, 10% (3) each, opted for the ".edu" and ".edu.in" extensions.
- The usage of ".in" and ".org" extensions was notably less compared to ".ac.in". Only 6.67% (2) of institutions employed the ".in" extension, which is a generic extension for India, while merely 3.33% (1) of institution used the ".org" extension.

Accessibility of Library webpage (Table 3):

- The majority of institutions, comprising 43.33% (13) of the total, have their library webpage links accessible under the facilities

page. This suggests that many institutions categorize library services as part of the facilities they offer to their stakeholders.

- A significant but smaller proportion, accounting for 16.67% (5) of institutions, have placed their library webpage links under the academics page.
- For 13.33% (4) of institutions, the library page links are accessible under the resources page.
- Approximately 10% (3) of institutions each have made their library page accessible under both the campus and home pages respectively. A smaller proportion, comprising 6.67% (2) of institutions, has placed their library page links under the students' service page.

Web presence of library webpages (Table 4):

- A significant majority 66.67% (20) of institutions, have embedded their library webpage within the main institutional website. This integrated approach facilitates seamless access to library resources alongside other institutional information.
- Conversely, 33.33% (10) of institutions maintain a distinct website exclusively dedicated to library services.

General information about library (Table 5):

- All websites selected for the study have provided an about library section, indicating a consistent effort to introduce users to the library's purpose, mission, and services.
- A majority of institutions 90% (27), offered details about the library's working hours, ensuring that users are informed about the operational schedule.
- Information about library rules was available on the vast majority of websites, with 96.67% (29) of institutions providing this crucial information.
- Details about library staff were provided by 86.87% (26) of institutions, indicating a relatively high level of transparency regarding the individuals responsible for library management and services.
- Disclosure of details about the library committee was comparatively lower, with

only 36.67% (11) of institutions providing this information.

- A significant proportion of websites, comprising 93.33% (28) of institutions, offered news and updates related to library activities and events, contributing to user engagement and awareness.

Library Collection (Table 6):

- Information about fundamental library collections such as printed books, e-books, periodicals, e-periodicals, and e-databases was available on all 30 websites selected for the study. This indicates a strong emphasis on providing essential details about the diverse range of resources available to users in both physical and digital formats.
- Details regarding audio/video/CD/DVD resources were provided by the majority of websites, with 90% (27) of institutions offering this information. This finding also observed in the study conducted by Haridasan & Uwesh (2014) for Central University websites.
- Information about open educational resources and information about thesis/dissertation resources, accessible on the vast majority of websites, with 96.67% (29) of institutions providing this information.
- Availability of information about standards was comparatively less prevalent, found on only 33.33% (10) of websites.
- Information about archives/manuscript collections was available on only 20% (6) of websites.

Library services and facilities (Table 7):

- It is found that all libraries provided details regarding the circulation of books and bibliographic services information on their website, highlighting a fundamental aspect of their services aimed at facilitating access to resources for users.
- Interlibrary loan facilities are available on a majority of library websites, with 63.33% (19) of institutions offering this service.
- Substantial proportion of libraries, comprising 76.67% (23) of institutions,

have developed institutional repositories.

- Information about website search facilities is accessible on the vast majority of websites, with 93.33% (28) of institutions providing this feature.

- OPAC/Web OPAC facilities, essential for cataloging and accessing library holdings, are available on a vast majority of websites, with 90% (27) of institutions offering this feature, this matches the findings of Dhule (2021), in the study of NIRF ranked Law institutes in India.

- Remote access facilities, enabling users to access library resources from off-campus locations, are provided by a significant proportion of library websites, with 70% (21) of institutions offering this service.

Application of web 2.0 and other tools (Table 8):

- The majority of institutions, accounting for 96.67% (29) of libraries, offer email/webmail facilities, indicating a widespread adoption of this basic communication tool to facilitate interaction between users and library staff.

- Ask a librarian tools, allowing users to submit inquiries and receive assistance from library staff, are provided by a smaller proportion of websites, with 23.33% (7) of institutions offering this service. This finding aligns with the study conducted by Sahu & Sonkar (2021) with reference to this feature on websites of Medical Institute's libraries.

- Comment facilities, enabling users to provide feedback and engage in discussions on library content, are available on 20% (6) of websites, indicating a moderate level of user interaction and feedback solicitation.

- Visitor count features, tracking the number of visits to the library website, are implemented by a small portion of websites, with 20% (6) of institutions offering this feature.

- FAQs tools, providing answers to frequently asked questions, are present on only 13.33% (4) of websites, suggesting a relatively low emphasis on preemptively addressing user queries and concerns. Similar finding has been observed in the study of Verma & Pathak (2021) in their analysis of ICSSR Institutes' Websites of India.

- A small proportion of websites, comprising 13.33% (4) of institutions, have dedicated Facebook pages, while an even smaller percentage, 10% (3) each, have Instagram and Twitter accounts.

- Virtual tours, offering users a visual walkthrough of library facilities and resources, are provided by 10% (3) of libraries, contributing to enhanced user engagement and familiarity with library spaces.

Value-added and Research support services (Table 9):

- A majority of websites 76.67% (23) of institutions, provide user orientation information. This indicates a strong emphasis on helping users familiarize themselves with library resources, services, and facilities, contributing to a positive user experience.

- A significant proportion of websites, comprising 60% (18) of institutions, offer facilities for book recommendations by users.

- A small percentage of libraries, representing 16.66% (5) of institutions, publish newsletters specifically dedicated to library updates.

- A majority of websites 66.67% (20) of institutions, provide information about plagiarism checker software. This indicates a proactive approach to promoting academic integrity and supporting researchers in avoiding plagiarism in their work.

9. RECOMMENDATIONS

The present study has analysed the website contents of the libraries of the top thirty architectural institutions listed in the 2023 version of NIRF. The study found that all the library websites examined are highly informative, well-designed, and developed with a user-oriented approach. However, a few recommendations have been proposed for regular updates and continuous improvement. These

recommendations can serve as useful guidelines for all architecture and planning institutions in India, including colleges, to upgrade their library websites, enhance user-centric features, and support further development in alignment with evolving information needs and technological advancements. Major recommendations of the study are-

- It is suggested that architecture and planning institutional libraries consider developing a dedicated library website to enhance visibility and provide easier access to resources and services.
- Development of a Digital Institutional Repository (IR) with regular maintenance and upgradation is recommended for preserving architectural designs, drawings, and plans in digital formats, ensuring their long-term accessibility for both current professionals and future generations.
- The creation of a library mobile application is also suggested as a means to offer convenient, on-the-go access to digital resources and services.
- Encouraged efforts include adopting standardized navigation and structure for library webpage links across institutional websites to improve discoverability.
- Expanding online collection information to include multimedia resources, specialized collections, archives, and manuscripts is advised to meet diverse user needs.
- The addition of advanced services, such as virtual tours, remote access, and interactive research guides, is recommended to enhance user engagement.
- It is further suggested to strengthen the use of Web 2.0 tools, including social media integration, comment facilities, and discussion forums, to promote interaction.
- Providing value-added services such as user orientation programs, research assistance, and online training modules is encouraged to support effective resource use.
- Regular communication through digital newsletters and updates is recommended to keep users informed of new resources and services. Finally, the promotion of digital literacy through tutorials, FAQs, and Ask

a Librarian features is suggested to assist users in navigating and effectively utilizing library resources.

10. CONCLUSION

Analysis of NIRF-ranked Architecture and Planning institutions' library websites reveals valuable insights into the state of digital presence, information provision, and user support within these academic libraries. The findings shed light on both commendable practices and areas for improvement across various criteria established for the study. The architectural and planning institutional libraries' webpages/websites support academic endeavors, enhancing information provision and service expansion. Digital engagement can further strengthen their role in knowledge dissemination and user support. In summary, while Architecture and Planning institutions' library websites demonstrate a strong commitment to supporting academic endeavors and user needs, there are clear opportunities for improvement in areas such as information provision, service expansion, and digital engagement. By addressing these areas, libraries of Architectural and Planning institutions can further enhance their role as valuable hubs for knowledge dissemination, research support, and user engagement within academic communities.

References

1. Adhikary, S., Banerjee, S., & Adhikary, B. (2022). Content analysis of West Bengal tourism websites. *College Libraries, 37*(3), 62-69. https://collegelibraries.in/index.php/CL/article/view/82

2. Bakkiyaraj, N., & Kalidasan, R. (2023). Websites of Physical Education institutions in India: a webometric analysis. *Kelpro Bulletin, 27*(2), 152-164. https://kelprobulletin.in/files/Kelpro%20Vol.27,2-11th.pdf

3. Beerappa, & Sheshadri, K. N. (2016). Web link analysis of selected documentation centres in India: a webometric study. *International Research: Journal of Library & Information Science, 6*(2), 367-380.

4. Brown J. D. (2021) Analysis of free browser-based accessibility tools: WCAG 2.1 evaluation of Mississippi Gulf Coast Public library websites. *SLIS Connecting, 10*(2). http://dx.doi.org/10.18785/slis.1002.10

5. Bulla, S. D., Turamari, R. N., Shenvi, S. V., Nayak, A. S., Swatantrya, A. N., & Bhandari, S. (2022). A Webometric Analysis of Architecture

Engineering Colleges in Karnataka, India. In Babbar, P., Jain, P. K., Markscheffel, B., Kar, D. C. & Sangchantr, R. (Eds.), *Metrics, Indicators, Mapping and Data Visualizations in Webometrics, Informetrics and Scientometrics* (pp. 429-439). B. K. Books International.

6. Council of Architecture. (2024). *About us.* https://coa.gov.in/index1.php?lang=1&level=0&linkid=3&lid=4

7. Das, A. & Gurey, P. (2021). Web content analysis of State University websites of West Bengal: an evaluative study. *Library Philosophy and Practice (e-journal).* 6691. https://digitalcommons.unl.edu/libphilprac/6691/

8. Devi, K. & Verma, M. K. (2018). Content analysis based evaluation of library websites: a case study. *Annals of Library and Information Studies, 65*(4), 239-251. http://op.niscair.res.in/index.php/ALIS/article/view/21657

9. Dhule, S. S. (2021). NIRF Ranking 2021 Law institutes library websites in India: an evaluative study. *Library Philosophy and Practice (e-journal).* 6518. https://digitalcommons.unl.edu/libphilprac/6518

10. Divya, L. R. & Vijayakumar, K. P. (2015). Content Analysis of the Websites of Medical Colleges in Kerala. *Kelpro Bulletin, 19*(1), 68-77. https://kelprobulletin.in/Journals_more_pdf.php?Uploads/579268-77_1_2015.pdf

11. Gupta, S. & Walia, P. K. (2022). Content Analysis of Websites of University Libraries in Delhi: A Study. *Library Philosophy and Practice (e-journal).* 7111. *https://digitalcommons.unl.edu/cgi/viewcontent.cgi?article=13788&context=libphilprac*

12. Haridasan, S. & Uwesh, M. (2014). Content Analysis of Central University Library Websites in India: a study. *Journal of Information Management, 1*(2), 59-71. *https://splpjim.org/wp-content/uploads/2016/04/Article-1.pdf*

13. Héroux, V. M., Beaudry, C. & Rietsch, C. (2020). Using web content analysis to create innovation indicators—what do we really measure? *Quantitative Science Studies, 1*(4), 1601–1637. https://doi.org/10.1162/qss_a_00086

14. Johnson, S. & Ramasamy, K. (2021). Content analysis of homepages of library websites of the top 10 IITs in India. *Library Philosophy and Practice (E-Journal).* 5237. Retrieved from *https://digitalcommons.unl.edu/libphilprac/5237/*

15. Kumar, V. & Yadav, S. B. (2020). How Efficient are University Library Portals of NIRF Ranked Indian Universities? :An Evaluative Study. *DESIDOC Journal of Library & Information Technology, 40*(1), 3-10. https://doi.org/10.14429/djlit.40.01.14932

16. Lee, J., Hayden, K. A., Ganshorn, H., & Pethrick, H. (2021). A content analysis of systematic review online library guides. *Evidence Based Library and Information Practice, 16*(1), 60-77. https://doi.org/10.18438/eblip29819

17. Madhu, S. & Kannappanavar, B. U. (2022). Content Analysis of Library Websites of National Institute of Pharmaceutical Education and Research (NIPER's) Institutes of India: An Evaluative study. *Library Philosophy and Practice (e-journal).* 7256. https://digitalcommons.unl.edu/libphilprac/7256/

18. Mani, M.; Thirumagal, A. & Vinodh, V. (2017). Content Analysis of Engineering College Library Websites Tirunelveli District, Tamil Nadu: a study. *Journal of Advances in Library and Information Science, 6*(2), 132-138. https://jalis.in/pdf/6-2/Mani.pdf

19. National Institutional Ranking Framework. (2024). *About NIRF.* https://www.nirfindia.org/Home/About

20. NIRF Ranking (2024). *India Ranking 2023: Architecture and Planning.* https://www.nirfindia.org/Rankings/2023/ArchitectureRanking.html

21. Rafiq, S., Ashiq, M., Ur Rehman, S., & Yousaf, F. (2021). A Content Analysis of the Websites of the World's Top 50 Universities in Medicine. *Science & Technology Libraries*, *40*(3), 260–281. https://doi.org/10.1080/0194262X.2021.1889446

22. Rahman, A. & Batcha, M. S. (2020). Content Analysis of Library Websites of Select Colleges of Delhi University: a study. *DESIDOC Journal of Library & Information Technology, 40*(4), 247-252. https://doi.org/10.14429/djlit.40.04.15454

23. Roy, D. (2022). NIRF Ranking and Research Trend: a comparative study of research outcomes of the ranked universities of West Bengal. *College Libraries, 37*(4), 13-25. https://collegelibraries.in/index.php/CL/article/view/86

24. Sahu, K. & Sonkar, S. K. (2021). Content analysis of NIRF ranked Medical Institute's Library websites of India: an evaluative study. *Library Philosophy and Practice (e-journal).* 6490. https://digitalcommons.unl.edu/libphilprac/6490/

25. Saloi, A. (2020). Web Content Evaluation of the University Libraries of Assam. *JIM - Journal of Information Management, 7*(2), 70-77. https://doi.org/10.5958/2348-1773.2020.00009.0

26. Sarjoon, N. R. & Humayoon, K. S. (2016). Content analysis of the websites of major research institutions in Thiruvananthapuram district. *Kelpro Bulletin, 20*(2), 53-63. https://kelprobulletin.in/Journals_more_pdf.php?Uploads/493453-63_2_2016.pdf

27. Savitha, K. S. (2016). Content analysis of deemed University library websites of Karnataka state: a study. *International Journal of Digital Library Services, 6*(1), 87-93. http://www.ijodls.in/uploads/3/6/0/3/3603729/767.pdf

28. Surendran, B. (2021). Library Web Pages of Polytechnic College Websites in Kerala: A Content Analysis. *Kelpro Bulletin, 25*(2), 60-72. `https://kelprobulletin.in/files/6.pdf`

29. Vaughan, K. T. L. & Warlick, S. E. (2020). Accessibility and Disability Services in Virginia's Four-Year Academic Libraries: A Content Analysis of Library Webpages. *Virginia Libraries, 64*(1), 1-7. `https://doi.org/10.21061/valib.v64i1.600`

30. Verma, M. K. & Pathak, T. (2021). Content Analysis and Design Trends of Indian Council of Social Science Research (ICSSR) Institutes' Websites of India: an Evaluation. *Journal of Indian Library Association, 57*(1), 92-104. `https://doi.org/10.34256/`

31. Wani, G. A. (2021). Content analysis of library website of selected Indian Institute of Management (IIM) in India: a study. *International Journal of Research in Library Science (IJRLS), 7*(2), 111-124. `https://doi.org/10.26761/IJRLS.7.2.2021.1406`

32. Yoon, A. & Schultz, T. (2017). Research data management services in academic libraries in the US: a content analysis of libraries' websites. *College & Research Libraries, 78*(7), 920-933. `https://crl.acrl.org/index.php/crl/article/view/16788/18346`

Appendix – 1

List of NIRF-2023 ranked top thirty Architecture and Planning Institutions

NIRF Rank 2023	Name of the Institute	State/UT	Abbr.	URL of Library Webpage
1	Indian Institute of Technology Roorkee	Uttarakhand	IITR	https://mgcl.iitr.ac.in/
2	National Institute of Technology Calicut	Kerala	NITC	https://www.library.nitc.ac.in/
3	Indian Institute of Technology Kharagpur	West Bengal	IITK	https://library.iitkgp.ac.in/
4	National Institute of Technology Tiruchirappalli	Tamil Nadu	NITT	https://www.nitt.edu/home/students/facilitiesnservices/library/
5	School of Planning and Architecture New Delhi	Delhi	SPAD	http://spa.ac.in/User_Panel/UserView.aspx?TypeID=1489
6	Jamia Millia Islamia,New Delhi	Delhi	JMI	https://www.jmi.ac.in/zhlibrary
7	Centre for Environmental Planning and Technology University	Gujarat	CEPT	https://cept.ac.in/library
8	National Institute of Technology Rourkela	Odisha	NITR	https://library.nitrkl.ac.in/
9	Aligarh Muslim University	Uttar Pradesh	AMU	https://www.amu.ac.in/libraries/maulana-azad-library
10	Indian Institute of Engineering Science and Technology, Shibpur	West Bengal	IIEST	http://library.iiests.ac.in:30000/dqpas/?view=featured
11	School of Planning and Architecture Bhopal	Madhya Pradesh	SPAB	https://www.library.spab.ac.in/
12	Visvesvaraya National Institute of Technology, Nagpur	Maharashtra	VNIT	https://vnit.ac.in/library/
13	Malaviya National Institute of Technology	Rajasthan	MNIT	https://library.mnit.ac.in/
14	S.R.M. Institute of Science and Technology	Tamil Nadu	SRMIST	https://www.srmist.edu.in/library/
15	Chandigarh University	Punjab	CHDU	https://www.cuchd.in/student-services/libraries.php
16	Lovely Professional University	Punjab	LPU	https://www.lpu.in/academics/libraries.php
17	College of Engineering Trivandrum	Kerala	CoET	https://www.cet.ac.in/technical-library/
18	School of Planning & Architecture, Vijayawada	Andhra Pradesh	SPAV	https://www.spav.ac.in/library.html
19	National Institute of Technology Patna	Bihar	NITP	https://www.nitp.ac.in/facilities/?tab=library
20	Birla Institute of Technology	Jharkhand	BITJ	https://www.bitmesra.ac.in/Show_Other_Department?cid=1&deptid=130
21	BMS College of Architecture	Karnataka	BMSCoA	https://www.bmsca.org/library.html
22	Nirma University	Gujrat	NUG	https://arcdeslibrary.nirmauni.ac.in/
23	M. S. Ramaiah Institute of Technology	Karnataka	MSRIT	https://msrit.edu/facilities/library.html
24	Maulana Azad National Institute of Technology	Madhya Pradesh	MANIT	http://www.manit.ac.in/central-library

Rank	Name of the Institute	State/UT	Abbr.	URL of Library Webpage
25	Manipal School of Architecture and Planning, MAHE	Karnataka	MSAP	https://www.manipal.edu/mu/campus-life/around-campus/campus-facilities/libraries/libraries-msap.html
26	Shri Mata Vaishno Devi University	Jammu and Kashmir	SMVDU	https://www.smvdu.ac.in/index.php/research-and-publications/central-library
27	M. G. R. Educational and Research Institute	Tamil Nadu	MGRERI	https://www.drmgrdu.ac.in/Infrastructure-amp-Facilities/101
28	National Institute of Technology Hamirpur	Himachal Pradesh	NITH	https://library.nith.ac.in/library/#gallery/libimages/1.jpg
29	Chandigarh College of Architecture Sector-12	Chandigarh	CCoA	http://cca.edu.in/page/Academic_Infrastructure
30	Chitkara University	Punjab	CU	https://library.chitkara.edu.in/