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Contents and Interactivity of Academic Library Portals in India

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Abstract

The main aim of this study was to analyze the contents and interactivity of academic library portals in India. The study was confined to a hundred selected academic library websites. A checklist along with a data sheet was used as the tool for data collection and Microsoft Excel was used as the tool for data analysis. The analysis revealed that the websites have an almost identical pattern of contents and interactivity. The majority of the websites used interactive applications. Facebook is the most preferred application followed by Twitter, YouTube, and LinkedIn. The websites preferred the extreme top right corner of their homepages to provide links to the applications and web objects. This study is useful for developing design standards for library websites and portals.

Keywords: World Wide Web, Website, Portal, Academic Library, Library portal, Electronic publishing.

1. Introduction

In the sphere of Information and Communication Technology, the invention of the web is a significant milestone (Singh & Gautam, 2016). The advent of web-based technologies transforms traditional libraries into digital and virtual libraries. Library websites enable libraries to impart their resources and services through a 24x7 platform (Kaushik, 2015). The websites act as a promotional tool to increase the visibility of libraries (Rekha & Kumar, 2019). The quality of a library website depends upon the resources and services provided through the website. Library websites provide various information services such as Web OPAC, Online reference service, online interlibrary loan, remote access, e-books, e-journals, etc. (Kumar & Verma, 2018). Web 2.0 technologies such as social networking sites, RSS feeds, blogs, etc. make library websites more interactive with the users and provide quality services without physical contact (Haneefa & Jiji, 2019).

Academic libraries are the backbone of higher education. They are responsible for supporting the teaching, learning, research, and developmental activities of their parent institution. Academic libraries play an important role in the collection, organization, preservation and dissemination of innovative and intellectual information resources for a wide range of user communities. So they need attractive and interactive websites for their activities and services. Many academic libraries in India have their websites, but they differ from each other depending on their parent institutions.

Content analysis of library websites helps us to understand the strength and weaknesses of library collections and services and thereby improve the current site (Kumar & Mir, 2017). This study use content analysis to evaluate academic library websites in India. The results will help design new library websites and redesign the existing library websites.

2. Review of Literature

Many studies have been carried out on the topic of content analysis of library websites. Eleven library websites of Virginia academic institutions provide accessibility and disability services (Vaughan & Warlick, 2020). Yoon and Schultz (2017) suggest that libraries need to be improved and engage more actively to provide services, supply information online and develop educational services. Wilson (2015) found that many academic library websites in Alabama fail to implement basic web design and accessibility standards. Pandey (2020) reported that library websites of state and central universities in Bihar provide adequate information for their users. In a similar vein, Habibi, Seyed-Akbari, Torab-Mianboab, and Samad-Sollani (2019) examined the usability of central library websites of universities of medical sciences in Iran. The websites were rated good (60-80%) in terms of usability and the study suggests that library websites should be efficient and effective to satisfy user needs. Singh and Gautam (2016) found that Jawaharlal Nehru University library website provides the best products and services than other central university library websites in Delhi. Library websites of central universities of the central region of India have a rich collection of e-resources (Kumar & Mir, 2017). Conversely, Verma and Devi (2015) found that very few central university libraries in northeastern states of India have web pages. Babar, Mairaj and Khan (2020) examined marketing features of university library websites in Pakistan through content analysis. The study found that the marketing features of public sector university libraries are better than the private sector. Rahman and Batcha (2020) analyzed the college library websites of Delhi University. The study reveals that Deshbandhu college library is in the first position whereas Rajmas college library is in the last position. Kumar and Verma (2018) evaluated the websites of NAAC accredited 'A' grade universities of the central zone of India. The study shows that the library websites have general library information, information about e-resources, and digital services. Most of the deemed university library websites of Karnataka state have information about institutions, about the library, copyright, books, and journals (Savitha, 2016).

Arshad and Ameen (2015) discovered that the most used library resources and services of the Panjab university library website include free scholarly journals, resources downloaded, e-journals, e-books, and donated personal collections. The development of websites in Nigerian university libraries is still in its earlier stage (Mohammed, Garba & Umar, 2016). Sahoo and Panda (2019) analyzed web contents and navigational strengths of 18 IIT libraries in India. The study found that IIT Delhi library is rated as rank number one whereas IIT Tirupati library is at the lowest rank. Similarly, Devi and Verma (2018) evaluated the websites of 19 IITs and 29 NITs in India. The study found that the IIT Kanpur library website is at rank number one and NIT Agartala library at the bottom rank among all the engineering institutions taken for the study. AITD engineering college provides maximum information through their websites and occupies the top position among other engineering colleges in Goa (Hugar, 2019). Kaushik (2015) reported that the majority of the National Institute of Technology library websites are providing information about their name, logo, library book collection, electronic resources, accuracy, diverse services, and sections. But, they are not able to provide mission statements, web 2.0 tools, and cloud-based services. Kahan and McKenzie (2019) observed that most of the private elementary schools located in California cities have functioning websites. But, they are not able to provide sufficient information regarding physical education or physical activity. Manjunatha (2016) evaluated the contents of eight

special library websites located in Bangalore. The study found that all library websites are providing general information, information about library collection, and library services.

National library websites have an almost identical pattern of contents and interactivity (Haneefa & Jiji, 2019). Rekha and Kumar (2019) observed that the national library websites of India is the top-ranked library website in terms of its web presence among other national library websites of SAARC countries. The web impact factor of the national library of India is the highest followed by the national library of Sri Lanka and the national library of Bhutan among the other national library websites in South Asia (Verma & Brahma, 2017). The adoption of the latest web technologies by national library websites of the South Asian region is still in its inception (Gayan & Das, 2017). Fraser-Arnott (2020) shows that all parliamentary libraries provide information regarding their clients and services based on the guidelines provided by the Inter-Parliamentary Union (IPU) and the International Federation of Library Associations (IFLA). Hill (2020) observed that Ontario public library websites can meet the information needs of persons with disabilities. Velasquez and Evans (2018) found that the public library websites of Canadian and USA libraries are better than Australian public library websites in terms of their accessibility and usability.

Libraries use social media applications to provide user-friendly services. Gupta, Gautam and Khare (2015) revealed that the library staff in power sector organizations were neither adequately aware of social media applications nor had a fair understanding of their usefulness in libraries. In another study, Saleem, Aly and Genoni (2015) demonstrate that currently academic librarians in Iraq and Australia use social media differently. Bhatt and Kumar (2014) explore that most of the students of Jawaharlal Nehru University are in favor of using the SNS/tools by the libraries and they expect the services should be provided to them by libraries through SNS/tools as well. Boateng and Quan (2014) show that 86 US academic libraries used LibGuides to create subject guides, course guides, information portals, research help pages, etc. Tandji (2014) found that Library 2.0 services improved the quality of Muhimbili University of Health and Allied Sciences Library, Tanzania, despite various challenges related to infrastructure, awareness, literacy, inadequate staff, security, and ownership of Web 2.0 services. Mahmood and Richardson (2013) reveal that all participant academic libraries were using some form of Web 2.0 technologies. Baro, Idiodi and Godfrey (2013) revealed that librarians in university libraries in Nigeria use Web 2.0 tools mostly for reference services online, library news/events, training resources, and image and video sharing. Chu and Du (2013) show that Facebook and Twitter were the most commonly adopted tools in university libraries from Asia, North America, and Europe. Aharony (2012) shows that American public and academic libraries use the information section and the wall and that there is a difference in the use of other Facebook sections, which was surprisingly limited in both kinds of libraries. Si, Shi and Chen (2011) found that the application of Web 2.0 in Chinese university libraries has gained much promising achievement, but there is still a long journey to go to popularize the Web 2.0 theory and application in libraries.

Aqil, Ahmad and Siddique (2011) show that new advances in Web technologies have enabled libraries to create new interactive services, such as virtual reference services, personalized interfaces of online catalogs, and audio-visual media that can be downloaded by the user community irrespective of their physical locations. Arif and Mahmood (2010) conducted a study to explore the pattern and extent of the adoption of Web 2.0 technologies by Pakistani librarians. Results show that instant messaging, blogs, social networking, and wikis were the most popular Web 2.0 technologies. Harinarayana and Raju (2010) conducted a study to explore the application of Web 2.0 and library 2.0 features as exemplified through university library websites around the world. Results reveal that most university libraries use RSS feeds for the dissemination of library news, events, and announcements. Whereas wiki is the least applied Web 2.0 technology, Instant Messaging is another most widely applied feature. Xu, Ouyang and Chu (2009) explored the websites of the 81 academic libraries in New York State to find out to what extent Web 2.0 tools were adopted. Results show that academic libraries in New York State have begun embracing the Web 2.0 movement although less than half of them adopted any Web 2.0 tools. Cuong Linh (2008) conducted a study that provides an overall picture of the application of Web 2.0 technologies in Australasian university libraries. It was found that at least two-thirds of Australasian university libraries deployed one or more Web 2.0 technologies.

The review of the literature shows that there exists a research gap on the evaluation of Indian academic library websites as well as the use of social media in Indian academic libraries. The current research focuses on the content analysis of Indian academic library websites. The study also examines the extent to which social media applications have been adopted by the libraries to interact with their user community.

3. Research Design

The universe of the study was websites of academic libraries in India. A checklist along with a data sheet was used as the tool for data collection and Microsoft Excel was used as the tool for data analysis. The investigators selected a representative sample of 100 academic libraries in India comprising seven All India Institute of Medical Science libraries, forty-five central university libraries, fifteen Indian Institute of Management libraries, eleven Indian Institute of Technology libraries, and twenty-two National Institute of Technology libraries. The websites/portals of these libraries were carefully scrutinized and information available from those websites was recorded in the checklist.

A datasheet of 5 x 5 horizontal and vertical grids with blue-colored shades to represent web objects were used. The darker the shade of the blue, the greater the number of times the particular web objects were found in the particular location. Based on this method frequency of social media applications in the academic libraries was calculated. The percentages are represented by increasingly darker shades of blue (white is <1% and dark blue is >33%) (Figure1).

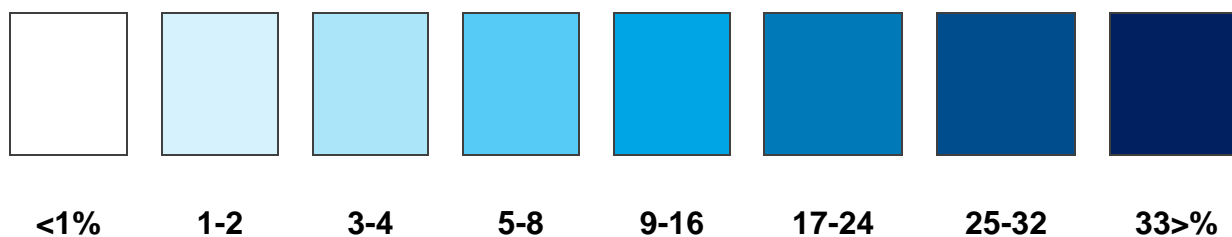


Figure 1 - Each Grid (Colour) Represents the Frequency of Interactivity Applications Found in Particular Location in the Library Portals

4. Results and Discussions

The checklist was used to collect data from five areas of academic library websites: General information about the library, Library collection, E-resources of the library, Library services, and use of social media. The collected data was analyzed and tabulated. The results are given below.

4.1 General Information

Academic library websites provide information regarding the history of the library, about the library, mission statement, location/address, location map, site map, library hours, library rules, news and events, membership/registration, website in other languages, FAQ, date of updating, contact, feedback, library sections, suggestions box, ask a librarian, help, font size changing and copyright. The general information gives an overall awareness about the library. Table 1 shows the general information provided by the library websites.

The table shows that a majority of the library websites provide a link to contact information (72%) and copyright (62%). About half of the websites (49%) provide information about the library. A good number of the websites provide information about library mission statements (26%), site map (26%), library hours (39%), library rules (36%), news and events (42%), websites in other languages (27%) and feedback (26%). The general information contents of AIIMS library websites are comparatively low.

Table 1
General Information in the Library Portals

General Information	IITs	IIMs	NITs	Central Universities	AIIMS	Total
History	1	-	-	6	1	8
About the library	8	7	8	24	2	49
Mission statement	4	4	10	8	-	26
Location/Address	1	1	-	4	2	8
Location map	-	1	1	7	1	10
Site map	4	12	4	4	2	26
Library hours	8	5	11	13	2	39
Library rules	3	9	7	15	2	36
News and Events	7	4	12	17	2	42
Membership / registration	4	5	5	10	1	25
Website in other languages	1	6	8	11	1	27
FAQ	6	3	5	3	-	17
Date of updating	3	2	1	7	-	13
Contact	11	13	19	26	3	72
Feedback	5	4	8	7	2	26
Library sections	-	-	-	8	-	8
Suggestion box	1	1	-	1	1	4
Ask a librarian	5	4	2	4	-	15
Help	-	1	2	-	-	3
Copyright	8	14	18	22	-	62

4.2 Library Collection

The library collection includes library materials, books, manuscripts, serials, government documents, etc. that make up the holding of a particular library. Table 2 depicts the information and links to the library collection on the websites.

It is found that about half of the websites provide information about books (48%) and journals (47%). A good number of the websites provide information about theses (26%), CD/DVD (33%), magazines (29%) and newspapers (28%). Libraries of central universities provide minimum details of their collection on their websites. Most of the libraries of AIIMS did not provide details of books, newspapers, magazines, and so on.

Table 2
Information about Library Collection

Information about Library Collection	IITs	IIMs	NITs	Central universities	AIIMS	Total
Books	5	11	13	18	1	48
Newspapers	1	9	7	10	1	28
Journals	6	11	10	19	1	47
Magazines	1	6	10	11	1	29
Video collection	1	3	5	3	-	12
CD / DVDs	5	8	11	9	-	33
Microforms	-	2	-	-	-	2
Maps	-	-	1	2	-	3
Manuscripts	-	-	-	4	-	4
Theses	7	4	5	10	-	26
Dissertations	4	6	1	6	-	17
Projects	-	-	1	2	-	3
Patents	1	-	-	-	-	1
Standards	1	1	5	-	1	8
Conference Proceedings	-	1	2	-	-	3
Annual report collection	1	3	3	-	-	7

4.3 E-Resources

Academic library websites should provide the information and links to e-resources such as e-books, e-journals, e-magazines, databases, etc. Table 3 depicts the details of e-resources provided by the websites.

Table 3
Information about E-resources

Information on e-resources	IITs	IIMs	NITs	Central universities	AIIMS	Total
E-Books	7	8	14	7	2	38
E-Journals	6	12	12	12	2	44
E-Newspapers	-	3	2	3	-	8
E-Magazines	1	1	-	-	-	2
Databases	5	8	8	13	1	35
Library Archives	2	1	1	1	-	5
Library Consortium	2	4	4	1	1	12
Institutional Repository	8	5	2	9	1	25

The table shows that a good number of the websites provide links to e-journals (44%) and e-books (38%). Links to e-magazines was one of the least provided e-resources among the library websites. Institutional repositories are maintained by IIT Kharagpur, IIT Bombay, IIT Kanpur, IIT Roorkee, IIT Bhubaneswar, IIT Gandhinagar, IIT Patna, and IIT Ropar. IIT Kanpur and IIT Delhi have a library consortium. IIT Bombay and IIT Kanpur have library archives. IIM Calcutta, IIM Calicut, IIM Indore, and IIM Raipur have a library consortium. IIM Ahmedabad, IIM Bangalore, IIM Kozhikode, IIM Trichy, and IIM Udaipur have institutional repositories. NIT Rourkela and NIT Calicut provide a link to institutional repositories. NIT Trichy has library archives. Malaviya NIT, Jaipur, NIT Jamshedpur, NIT Silchar, and NIT Hamirpur provide links to different library consortiums. Only Central University, Haryana has a library consortium. Central University South Bihar has links to library archives. AIIMS New Delhi has links to library consortium and institutional repository.

4.4 Library Services

Library service describes the facilities provided by a library for the dissemination of information. Academic libraries in India provide different services to their users. Library websites provide a link to the services such as circulation, OPAC, indexing, abstracting, etc. Table 4 shows the information about library services provided through the websites.

Table 4
Information about Library Services

Information on Library Services	IITs	IIMs	NITs	Central universities	AIIMS	Total
OPAC	8	8	13	19	2	50
Circulation	5	4	9	10	3	31
Interlibrary Loan	7	8	4	5	-	24
Document Delivery Services	4	2	1	3	-	10
Reference Services	5	4	6	10	3	28
Bibliography	-	1	2	1	2	6
Reprography	6	7	7	14	-	34
Indexing	-	1	1	-	-	2
Abstracting	1	1	1	-	-	3
Reading Room	2	-	6	7	-	15
Digital Library	2	4	9	4	-	19
CAS	1	2	2	2	-	7
User's instruction services	1	2	1	2	-	6
New arrivals	2	5	1	-	-	8
Web-scale discovery services	4	4	3	-	-	11

The table shows that half of the websites (50%) provide OPAC. A good number of the websites provide reprography (34%), reference service (28%), and circulation (31%) service. A very few of the websites provide document delivery services (10%), bibliography (6%), indexing (2%), abstracting (3%), CAS (7%), user's interaction service (6%), new arrivals (8%) and web-scale discovery services (11%).

4.5 Use of Social Media

Social media is an interactive and collaborative online platform. The adoption of social media helps academic libraries to reach out to their clientele easily. Social media makes websites more attractive and interactive. Table 5 shows the extent of use of social media applications by Indian academic libraries.

Table 5
Use of Social Media in Academic Library Websites

Social Media	IITs	IIMs	NITs	Central Universities	AIIMS	Total
Facebook	5	12	8	18	3	46
Twitter	5	10	6	18	3	42
LinkedIn	2	10	4	4	-	20
Blogs	-	4	-	3	-	7
RSS	-	1	-	-	-	1
YouTube	4	8	6	10	2	30
Google+	-	-	1	1	2	4
Instagram	3	8	2	3	-	16
Pinterest	1	1	1	1	-	4

The table shows that about half of the websites (49%) used social media tools. Facebook (46%) is the most preferred application on the websites. A good number of the websites (42%) use Twitter. It is found that IIM Bangalore and IIM Udaipur provided more social media applications (6).

4.6 Location of Social Media

Libraries use social media applications that allow users to interact with the library effectively. This study attempts to find and compare the location of social media applications in the websites.

1	1	4	4	10
1		2	1	4
	2	2	5	1
2		1		8

Figure 2- Location of Facebook (n=46)

It was found that 46 percent of the library websites have a link to Facebook on their home pages. Fig.2 depicts that 10 websites have the link at the extreme top right corners of their home pages.

1	1	1	4	9
1		2	1	4
	1	3	3	1
1		1		8

Figure 3-Location of Twitter (n=42)

The analysis shows that 42 percent of the library websites use Twitter. Fig.3 shows that 9 websites have the link at the extreme top right corner and 8 websites have a link at the extreme bottom right corner of their home pages.

				1

Figure 4-Location of RSS (n=1)

It is revealed that only one library website provides a link to RSS and is placed at the extreme top right corner of their homepage.

				2
1				1
1	1		1	

Figure 5-Location of Blog (n=7)

It was found that 7 percent of the library websites have a link to blogs in their homepages. Fig. 5 reveals that 2 websites have the link at the extreme top right corner of their homepages.

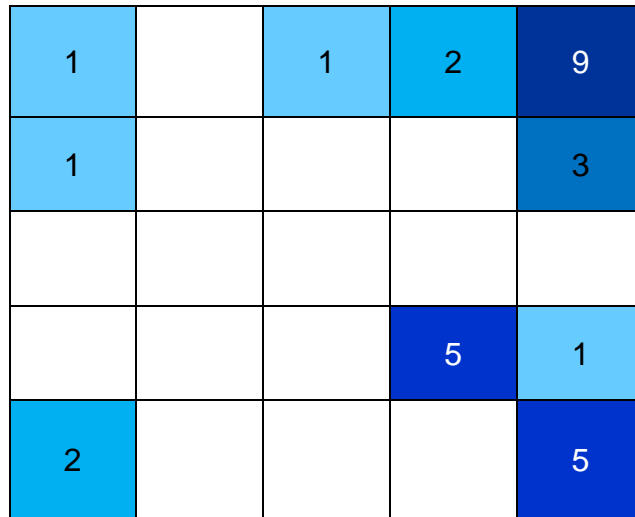


Figure 6-Location of YouTube (n=30)

It was found that 30 percent of the websites have a link to YouTube. Fig. 6 depicts that 9 websites provided the link to YouTube at the extreme top right corner of their home pages.

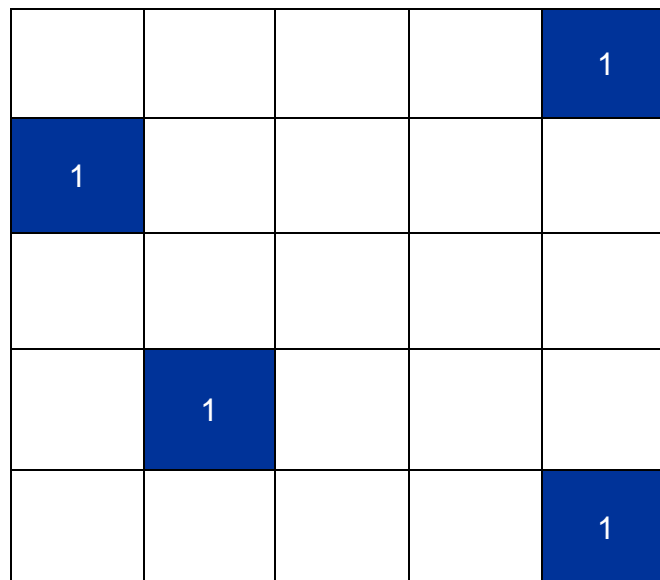


Figure 7-Location of Google+ (n=4)

The analysis shows that 4 library websites provide a link to Google+. Fig. 7 shows that Google+ is randomly distributed in the websites.

		2		1
1				

Figure 8-Location of Pinterest (n=4)

It was found that only 4 libraries provide a link to Pinterest. Fig.8 reveals that 2 library websites have the link at the top middle position of their home pages.

	1	1	2	3
		2		2
			4	1
1				3

Figure 9-Location of LinkedIn (n=20)

The analysis shows that 20 percent of the websites provide a link to LinkedIn. Fig.9 shows that 4 libraries have the link at the bottom right side of their home pages.

5. Conclusion

The study analyzed the contents and interactivity of academic library websites in India. The study revealed that most of the Indian academic library websites provide informative links to general information. But, the general information contents of AIIMS library websites are comparatively low. The majority of the libraries present

their collection on their websites. The scope of their presentation varies from general to highly detailed. A few of the websites provide detailed information about their manuscript collection, maps, pictures, etc. All IIT, IIM, and NIT libraries provide details of the collection on their websites. But, central universities and AIIMS library websites have minimum details of their collection. The majority of the library websites provide a link to e-resources. But, a few of the websites provide information about library archives, institutional repositories, and library consortium. All the libraries provide information about their services on their websites.

The use of social media by academic libraries in India was average in level. It is found that Facebook is the most prevalent social media application in the libraries followed by Twitter, YouTube, and LinkedIn. Various social media applications can be used for collaborative and participative communication of information. The location of social media applications is varied for different library websites. Websites preferred the extreme top right corner of their home page for providing interactive applications.

Academic libraries play an important role in Indian higher education. They are responsible for providing information resources and services for teaching, education, and research. In response to the technological advancements, academic libraries are started to adopt web-based technologies to serve their user community (Santosh, 2017). Websites and web portals make libraries user-friendly and interactive.

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