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Research Article

Evolution of the Global Research Landscape on Content Analysis for Evaluating Academic Library Websites: A Bibliometric Study (2002-2025)

Madhu Shivashankarappa[1,*], Brij Mohan Gupta[2]

[1]Department of Library and Information Science, GM Central Library, GM University, Davangere, Karnataka, INDIA.
[2]CSIR-National Institute of Science Communication and Policy Research (CSIR-NIScPR), New Delhi, INDIA.

ABSTRACT

Objectives: This study provides a comprehensive bibliometric analysis of global research on content analysis for evaluating academic library websites, identifying publication trends, influential contributors, collaboration patterns, and emerging research themes. **Methodology:** Bibliographic data were retrieved from the Scopus database using a structured search strategy covering 2002-2025. A total of 377 publications were analysed using Microsoft Excel, Bibliometrix/ Biblioshiny (R), and VOSviewer (version 1.6.20). Bibliometric indicators, Bradford's Law, and Subramanyam's Degree of Collaboration were employed to assess research productivity, impact, journal dispersion, and collaboration. **Findings:** The analysis revealed a substantial increase in publications after 2018. The dataset comprised 738 authors, 472 affiliations, 64 countries, 145 sources, and 935 author keywords. M.K. Verma emerged as the most productive author, while K. Mahmood recorded the highest citation impact. The University of Calcutta was the leading productive institution, whereas the University of the Punjab demonstrated the greatest research influence. The United States dominated research output and international collaboration. Library Philosophy and Practice was the most productive journal, while the Journal of Academic Librarianship exhibited the highest citation impact. Keyword co-occurrence analysis identified six major research themes centred on academic libraries, library websites, content analysis, website usability, Web 2.0 technologies, and digital library services. The Degree of Collaboration (0.68) indicates that collaborative research predominates in this field. **Originality/Value:** The study offers a comprehensive overview of the intellectual structure, collaboration patterns, and thematic evolution of research on content analysis for evaluating academic library websites, providing a valuable reference for researchers, librarians, and policymakers.

Keywords: Academic Library Websites, Bibliometric Analysis, Bibliometrix, Content Analysis, VOSviewer, Website Evaluation.

Correspondence:
Dr. Madhu Shivashankarappa
Department of Library and Information Science, GM Central Library, GM University, Davangere-577006, Karnataka, INDIA.
Email: madhu.rey24@gmail.com

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INTRODUCTION

In the digital era, library websites have emerged as essential gateways that extend the library's physical presence into a global digital environment. They not only facilitate access to catalogues, databases, and electronic resources but also foster communication, collaboration, and user engagement (Dhar and Gayan, 2022). Over time, these websites have evolved from static repositories into interactive ecosystems emphasizing usability, accessibility, and personalized services (Battleson *et al.*, 2001; George, 2009). The integration of Web 2.0, Web 3.0, and emerging Web 4.0 technologies has further enhanced user experience through responsive design, social media integration, and content management systems (Zhang and Lu, 2025; Jilani *et al.*, 2025). Studies across regions underscore that effective design and information architecture are vital to optimizing digital access and engagement (Nawaz and Clemmensen, 2013; Tavosi and Naghshineh, 2021; Devi and Verma, 2018).

Despite the growing body of research on the design and usability of library websites, limited bibliometric studies have systematically mapped the intellectual structure and thematic evolution of this field at a global level. Bibliometric analysis offers valuable insights by identifying influential publications, citation patterns, and collaboration networks, thereby highlighting emerging research directions (Donthu *et al.*, 2021; Aria and Cuccurullo, 2017; Kappi *et al.*, 2021; Madhu and Kannappanavar, 2020). Accordingly, this study undertakes a bibliometric analysis of global research on library websites published between 2000 and 2024, using data from the Scopus database analysed with Microsoft Excel and VOSviewer. The findings aim to provide a comprehensive

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overview of the field's development, offering strategic insights for librarians, researchers, and digital information professionals.

REVIEW OF LITERATURE

Khan *et al*. 2025 undertook bibliometric assessment on the emerging technologies supporting smart libraries between of 2013-2022. Some of eminent themes that were emerged were information retrieval, personalized recommendations, and intelligent data analytics. Ma and Lund, 2020 further documented shifts in Library and Information Science (LIS) research topics, noting changes in research emphasis from 2006 to 2018, including increased focus on scholarly communications and information behaviour. Ahmad *et al*. 2018 examined the digital library research using Web of Science (WOS) data. The core finding highlight that USA was productive country, Illinois University stood top among and contributed highest documents and Fourie from South Africa came out top prolific author. Mishra *et al*. 2022 investigated bibliometric trend in open educational resources using Scopus data. The study focused based on five core theme open text, open online course, open courseware, open-source software, and open social learning. Grover *et al*. (2026) a well-structured bibliometric evaluation of the Indian Journal of Psychiatry, analysing 2,357 publications published between 2009 and 2024. The reported 9.16% annual publication growth rate and the increase in the journal's Impact Factor from 0.384 to 3.1 effectively demonstrate its growing scholarly influence. The findings are relevant and provide valuable insights into publication trends, collaboration patterns, and thematic evolution. Similary study, was conducted by Vaishya *et al*. (2026) on Journal of Neurosciences in Rural Practice, analysing 2,386 publications published between 2010 and 2025. The study effectively demonstrates the journal's scholarly performance, reporting 14,339 citations, an h-index of 40, and a CPP of 6.01, while highlighting publication trends, collaboration networks, and thematic evolution. The findings are well presented and offer valuable insights into the journal's contribution to neuroscience research, particularly in rural and resource-limited settings.

Objectives of the Study

In order to systematically evaluate the development, collaboration, and thematic evolution of research on content analysis for evaluating academic library websites, the present study addresses the following objectives:

- To examine the publication growth and citation performance of research on content analysis for evaluating academic library websites published between 2002 and 2025.
- To identify the most productive and influential publication sources, authors, institutions, and countries, and evaluate their scholarly impact using bibliometric indicators.
- To analyse the patterns of research collaboration among authors, institutions, and countries using collaboration metrics and network visualization techniques.
- To identify the intellectual structure and thematic evolution of the field through keyword co-occurrence analysis and the identification of emerging research themes.
- To determine the core journals and publication dispersion using Bradford's Law, and to examine the authorship pattern and degree of collaboration using Subramanyam's Degree of Collaboration.
- To identify the most influential publications and citation patterns, thereby highlighting the foundational and highly cited contributions that have shaped research on content analysis for evaluating academic library websites.
- To provide a comprehensive bibliometric overview of the field and identify research trends, collaboration opportunities, and potential directions for future research in the evaluation of academic library websites.

METHODOLOGY

This study employed a bibliometric research design to analyse the scientific literature on content analysis for evaluating academic library websites published between 2002-2025. Bibliographic records were retrieved from the Scopus database using the following search query:

TITLE-ABS-KEY ("library website" OR "academic library website" OR "college library website" OR "university library website" OR "library portal" OR "library homepage" OR "library webpage") AND ("content analysis" OR "content evaluation" OR "website evaluation" OR "web presence" OR "website analysis" OR "usability analysis" OR "web 2.0" OR "web 3.0" OR "web 4.0" OR "social networking sites" OR "academic networking sites" OR "content management systems")

The retrieved data were organized and analysed using Microsoft Excel, R (Bibliometrix/Biblioshiny package), and VOSviewer (version 1.6.20). Microsoft Excel was used for data cleaning, tabulation, and descriptive statistical analysis; R was employed to compute bibliometric indicators and generate performance analysis; and VOSviewer was used to construct and visualize co-authorship, institutional, country collaboration, and keyword co-occurrence networks. Bibliometric indicators, including Total Publications (TP), Total Citations (TC), Citations per Paper (CPP), Relative Citation Index (RCI), International Collaborative Publications (ICP), Funded Publications (FP), and Total Link Strength (TLS), were used to evaluate research productivity, impact, and collaboration. Additionally, Bradford's Law was applied to identify the core journals, while Subramanyam's

Degree of Collaboration (DC) was calculated to assess collaborative authorship. The combined application of these tools and bibliometric techniques provides a comprehensive understanding of the publication trends, collaboration patterns, citation impact, and thematic evolution of research on content analysis for evaluating academic library websites.

Data Analysis and Interpretation

Overview of Dataset

Figure 1 represents the overall bibliometric characteristics of the dataset on research on content analysis for evaluating academic library websites included in this study. The dataset comprises 377 publications published between 2002-2025 in Scopus database, indexed across 176 sources and contributed by 738 authors, including 119 authors of single-authored documents. The literature exhibits an annual growth rate of 14.38%, with an international co-authorship rate of 8.753% and an average of 2.13 co-authors per document, indicating the predominance of collaborative research. The dataset contains 935 author keywords and 11,098 references, reflecting broad thematic coverage and a strong scholarly foundation. Furthermore, the average document age of 8.74 years and 9.488 citations per document suggest that research on content analysis for evaluating academic library websites represents a well-established and moderately influential body of literature.

Annual production of publications and performance

Table 1 presents the annual publication and citation trends in research on content analysis for evaluating academic library websites from 2002 to 2025. During the study period, 377 publications were produced, accumulating 3,577 citations with an overall average of 9.49 citations per publication (CPP). Research activity was relatively limited during 2002-2009, contributing only 28 publications (7.43%); however, these publications achieved the highest citation impact (CPP=14.71), indicating that early studies established the foundation for subsequent research. The period 2010-2017 marked significant expansion, accounting for 144 publications (38.20%) and 1,942 citations, reflecting both increased productivity and strong scholarly influence. Research output further accelerated during 2018-2025, contributing 205 publications (54.38%), although the average citation impact declined (CPP=5.97), primarily because recent publications have had less time to accumulate citations. The highest annual publication output was recorded in 2021 (52 publications; 13.79%), while 2015 received the highest annual citation count (469 citations), demonstrating the lasting influence of studies published during that period (Figure 2). A total of 24 internationally collaborative publications and 37 funded publications indicate a gradual increase in global collaboration and financial support for research. Overall, the results demonstrate a clear upward trend in publication productivity, reflecting the growing importance of evaluating academic library websites using content analysis, while the citation pattern highlights the continuing influence of earlier foundational studies and the expected citation lag associated with recent publications.

Publications Types

Table 2 presents the distribution of publication types in research on content analysis for evaluating academic library websites during 2002-2025. The dataset comprises 377 publications, with journal articles representing the dominant document type (307 publications; 81.43%), accounting for 3,211 citations and an average of 10.46 citations per paper (CPP). This indicates that journal articles serve as the primary medium for disseminating research in this field. Although review articles constitute only 13 publications (3.45%), they achieved the highest citation impact (CPP=18.23), highlighting their importance in synthesizing existing knowledge and guiding future research. Conference papers (29; 7.69%) and book chapters (15; 3.98%) contributed modestly but received comparatively fewer citations, reflecting their limited scholarly influence. Books (8; 2.12%) also formed a small proportion of the literature, while notes and the single retracted publication had negligible impact. International collaboration was observed mainly in journal articles (19) and conference papers (4), whereas 34 of the 37 funded publications were journal articles, indicating that funded research is predominantly disseminated through peer-reviewed journals. Overall, the results indicate that journal articles constitute the core of scholarly communication in this field, while review articles exert the greatest citation impact despite their relatively small number.

Authorship Collaboration Pattern

Table 3 presents the authorship pattern and degree of collaboration in research on content analysis for evaluating academic library websites. Two-authored publications accounted for the largest share with 164 publications (43.50%), followed by single-authored publications (119; 31.56%) and three-authored publications (58; 15.38%). Publications involving four authors contributed 24 papers (6.37%), while those with five or more authors collectively accounted for only 12 publications (3.19%), indicating that small collaborative teams dominate the field. Among the major authorship categories, three-authored papers achieved the highest CPP (10.34), closely followed by two-authored papers (CPP=10.16), whereas single-authored papers recorded a CPP of 8.13. International collaboration was highest in two-authored publications (ICP=10), and funded research was also concentrated in this category (FP=18). The Degree of Collaboration (DC), calculated using Subramanyam's, (1983) formula, was 0.68, indicating that 68.4% of the publications were produced through collaborative authorship. Overall, the findings demonstrate that collaborative research, particularly involving two or three authors, is the predominant mode of scholarly communication

Table 1: Annual Trajortory of Publications.

Year	TP	%TP	TC	CPP	ICP	FP	Year	TP	%TP	TC	CPP	ICP	FP
2002	1	0.27	35	35.00	-	-	2016	12	3.18	93	7.75	-	-
2003	1	0.27	9	9.00	-	-	2017	17	4.51	219	12.88	-	1
2004	4	1.06	30	7.50	-	-	2018	15	3.98	150	10.00	-	1
2005	3	0.80	96	32.00	-	-	2019	37	9.81	273	7.38	3	4
2006	2	0.53	12	6.00	-	1	2020	20	5.31	275	13.75	-	3
2007	5	1.33	51	10.20	-	-	2021	52	13.79	186	3.58	1	6
2008	3	0.80	22	7.33	-	-	2022	22	5.84	174	7.91	3	5
2009	9	2.39	157	17.44	2	-	2023	18	4.77	73	4.06	1	3
2010	10	2.65	283	28.30	2	-	2024	19	5.04	52	2.74	2	4
2011	21	5.57	307	14.62	1	-	2025	22	5.84	40	1.82	3	5
2012	23	6.10	195	8.48	1	1	**2002-2009**	**28**	**7.43**	**412**	**14.71**	**2**	**1**
2013	19	5.04	172	9.05	-	1	**2010-2017**	**144**	**38.20**	**1942**	**13.49**	**9**	**5**
2014	15	3.98	204	13.60	2	-	**2018-2025**	**205**	**54.38**	**1223**	**5.97**	**13**	**31**
2015	27	7.16	469	17.37	3	2	**Grand Total**	**377**	**100.00**	**3577**	**9.49**	**24**	**37**

TP: Total Publications; %TP: Percentage of Total Publications; TC: Total Citations; CPP: Citations Per Paper; ICP: International Collaborative Publications; FP: Funded Publications.



Figure 1: Overall picture of the Dataset.

in research on content analysis for evaluating academic library websites.

Top Leading Authors

Table 4 identifies the most productive and influential authors in research on content analysis for evaluating academic library websites. Among the 738 authors identified in the dataset, only 51 met the threshold of publishing at least two documents and were therefore included in the productivity and collaboration analysis (Supplementary Table 1). Collectively, these authors contributed 117 publications (31.03% of the total output) and received 1,220 citations (34.11% of the total citations). The Top 51 authors achieved a cumulative CPP of 30.57 and an RCI of 3.22, substantially exceeding the overall dataset CPP (9.49) and the world average RCI (1.00), indicating that this group produced publications with considerably greater scholarly impact than the overall literature. Among the productive authors, M.K. Verma (Mizoram University, India) ranked first with 7 publications, followed by T. De Sarkar (5 publications) and D.L. Velasquez (4 publications). D.L. Velasquez recorded the highest international collaboration (3 ICP), while M.K. Verma exhibited the strongest collaboration network with the highest TLS (6). Among the impactful authors, K. Mahmood (University of the Punjab, Pakistan) ranked first with 158 citations, the highest CPP (79.00) and RCI (2.58) despite publishing only two papers, followed by Y.H. Chen (101 citations; RCI=1.65) and M. Ashiq (74 citations; RCI=1.21). Overall, although the Top 51 authors contributed only 31.03% of the total publications, they accounted for 34.11% of all citations and achieved substantially higher citation and research impact indicators than the overall dataset, demonstrating their pivotal role in advancing research on content analysis for evaluating academic library websites.

Figure 3 illustrates the co-authorship network of researchers contributing to research on content analysis for evaluating academic library websites, generated using VOSviewer. The network comprises of the top 13 collaboration clusters, indicating that research in this field is organized into several small and relatively independent research groups. Cluster 1 (Red) is the largest and most prominent, centred on M.K. Verma (TP: 7; TC: 49; TLS: 6), who collaborates with K.K. Devi (TP: 2; TC: 26; TLS:

2), K. Brahma (TP: 2; TC: 19; TLS: 2), and S.C. Singha (TP: 2; TC: 1; TLS: 2). Verma exhibits the highest total link strength, highlighting his central role in the collaboration network. Clusters 2-4 represent three-author collaboration groups, including Agosto-Ely-Naughton, Chen-Ramanayaka-Shi, and Dols-Hulscher-Yoon. Among these, the Chen-Ramanayaka-Shi and Dols-Hulscher-Yoon clusters each demonstrate the strongest internal collaboration (TLS=4 per author), whereas the Agosto-Ely-Naughton cluster shows comparatively moderate connectivity and citation impact. Clusters 5-13 are primarily two-author collaborative groups comprising Ambika-Ganesan, Hugar-Kannappanavar, Blummer-Kenton, Madalli-Singh, Ashiq-Mahmood, Gupta-Pareek, Mumtaz-Shahzad, Jones-Thorpe, and Campbell-Meier-Velasquez. Among these, the Ashiq-Mahmood cluster exhibits the highest citation impact, driven by K. Mahmood (TC: 158) and M. Ashiq (TC: 74), while the Madalli-Singh cluster also demonstrates notable scholarly influence with 34 citations each. The Blummer-Kenton and Campbell-Meier-Velasquez clusters show comparatively stronger collaborative ties (TLS=3), whereas the remaining clusters exhibit moderate to low citation impact and collaboration strength. Overall, the co-authorship network reveals a fragmented collaboration pattern characterized by several localized research groups with limited inter-cluster connectivity. Although a few authors, particularly M.K. Verma, serve as key collaboration hubs, and K. Mahmood emerges as the most influential author in terms of citations, the absence of strong links between clusters suggests considerable scope for expanding national and international research collaborations in this field.

Top Affiliation

Table 5 presents the most productive and influential affiliations in research on content analysis for evaluating academic library websites. Of the 472 affiliations identified in the dataset, 32 met the threshold of publishing three or more documents and were included in the analysis. Collectively, these affiliations contributed 124 publications (32.89%) and received 1,410 citations (39.42%), with an overall CPP of 11.37 and an RCI of 1.20, both exceeding the overall dataset values (CPP=9.49; RCI=1.00) (Supplementary Table 2). This indicates that a relatively small group of institutions contributed a disproportionately higher share of the research impact. Among the productive affiliations, the University of Calcutta, India ranked first with 9 publications, followed by Mizoram University, India (7 publications), while the University of the Punjab, Pakistan, Wuhan University, China, and the University of North Texas, United States each produced 6 publications. Despite leading in publication output, the University of the Punjab demonstrated the greatest research influence among the productive institutions, receiving 221 citations with a CPP of 36.83 and RCI of 3.88, followed by Wuhan University (114 citations; CPP=19.00; RCI=2.00). Among the impactful affiliations, the University of California, United States, ranked first with 133 citations, achieving the highest CPP (44.33) and RCI (4.67) despite publishing only three papers, followed by the University of the Punjab and the University at Albany, United States. The University of the Punjab recorded the highest international collaboration (ICP=2) and the strongest collaboration strength (TLS=2), shared with the Indian Statistical Institute, India, highlighting their active engagement in collaborative research. Overall, although the top 32 affiliations accounted for only 32.89% of the total publications, they contributed 39.42% of the total citations, demonstrating that research productivity and scholarly influence are concentrated within a relatively small group of leading institutions in this field.

Figure 4 represents the institutional collaboration network in research on content analysis for evaluating academic library websites, generated using VOSviewer. The network comprises eight collaboration clusters, reflecting partnerships among leading institutions across different countries. Cluster 1 (Red) includes Universiti Teknologi MARA, Malaysia (TP: 3; TLS:

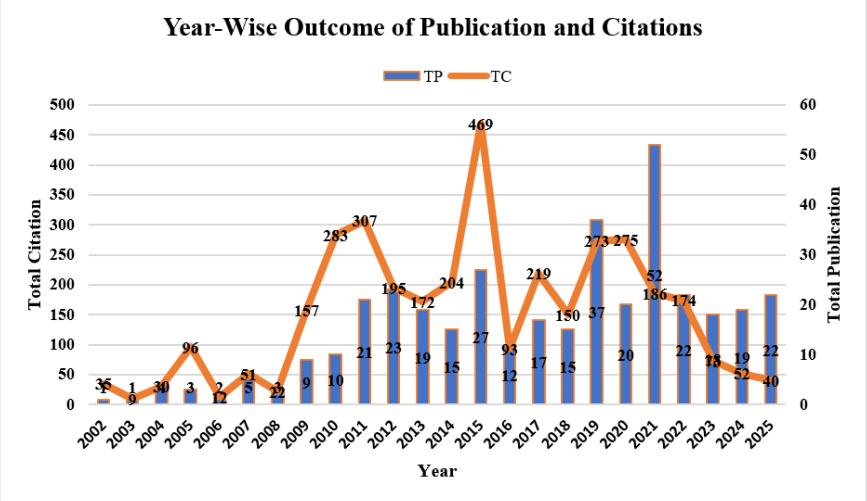


Figure 2: Annual Trajortory of Publications.

Table 2: Publication Types.

Sl. No.	Document Type	TP	%TP	TC	CPP	ICP	FP
1.	Article	307	81.43	3211	10.46	19	34
2.	Book	8	2.12	35	5.00	-	-
3.	Book chapter	15	3.98	20	1.33	-	1
4.	Conference paper	29	7.69	70	2.41	4	2
5.	Note	4	1.06	2	0.50	-	-
6.	Retracted	1	0.27	2	2.00	-	-
7.	Review	13	3.45	237	18.23	1	-
	Grand Total	**377**	**100.00**	**3577**	**9.49**	**24**	**37**

TP: Total Publications; %TP: Percentage of Total Publications; TC: Total Citations; CPP: Citations Per Paper; ICP: International Collaborative Publications; FP: Funded Publications.

Table 3: Authorship Pattern.

Authors	TP	%TP	TC	CPP	ICP	FP	DC
SA	119	31.56	967	8.13	1	9	0.68
2	164	43.50	1666	10.16	10	18	
3	58	15.38	600	10.34	6	3	
4	24	6.37	192	8.00	4	2	
5	4	1.06	61	15.25		2	
6	4	1.06	26	6.50	1	1	
7	1	0.27	9	9.00			
11	1	0.27	7	7.00		1	
12	1	0.27	18	18.00	1	1	
13	1	0.27	31	31.00	1		
Grand Total	**377**	**100.00**	**3577**	**9.49**	**24**	**37**	

TP: Total Publications; %TP: Percentage of Total Publications; TC: Total Citations; CPP: Citations Per Paper; ICP: International Collaborative Publications; FP: Funded Publications.

2), University of California, United States (TP: 3; TLS: 1), and University of the Punjab, Pakistan (TP: 6; TLS: 2), representing one of the most influential collaboration groups. Cluster 2 (Green) comprises University of Calcutta, India (TP: 9; TLS: 2) and Mizoram University, India (TP: 7; TLS: 1), forming the most productive institutional partnership. Cluster 3 (Blue) consists of Drexel University (TP: 3; TLS: 1) and University of Oklahoma (TP: 4; TLS: 1), while Cluster 4 (Yellow) includes Indian Statistical Institute (TP: 3; TLS: 2) and University of Calcutta (TP: 9; TLS: 2), demonstrating strong national collaboration. Cluster 5 (Purple) comprises Centre for Computing Sciences (TP: 4; TLS: 3) and Towson University (TP: 3; TLS: 3), exhibiting the strongest collaborative links. Cluster 6 (Cyan) includes University of Ilorin, Nigeria (TP: 3; TLS: 2) and University of South Africa (TP: 3; TLS: 2), whereas Cluster 7 (Orange) connects The Open University of Sri Lanka (TP: 3; TLS: 2) with University of Malaya (TP: 3; TLS: 3). Cluster 8 (Pink) links Long Island University, United States (TP: 3; TLS: 1) and Wuhan University, China (TP: 6; TLS: 1), representing an international collaboration. Overall, the network reveals that institutional collaboration is organized into several small but distinct groups, with Centre for Computing Sciences-Towson University and University of Calcutta-Indian Statistical Institute exhibiting the strongest collaboration, while the University of the Punjab, University of California, and Wuhan University contribute substantially to the research impact of the field.

Top Countries

Table 6 presents the most productive countries in research on content analysis for evaluating academic library websites. Of the 64 countries identified in the dataset, only 15 met the threshold of publishing four or more documents and were included in the country-level analysis. Collectively, these countries contributed 349 publications (92.57%) and received 3,270 citations (91.42%), with an overall CPP of 9.37 and RCI of 0.99, indicating that research output and impact are highly concentrated among a limited number of countries. The United States emerged as the leading contributor with 132 publications, 1,568 citations, the highest TLS (5), and a CPP of 11.88, demonstrating its dominant role in both productivity and collaboration. India ranked second with 88 publications, although its citation impact was comparatively lower (CPP=5.53; RCI=0.58). Pakistan demonstrated the highest

citation impact among the leading productive countries, with 268 citations, CPP of 14.89, and RCI of 1.57, followed by Canada (CPP=13.44; RCI=1.42) and Spain (CPP=13.00; RCI=1.37). The United States and Malaysia exhibited the strongest collaboration networks (TLS=5), while the United Kingdom, Nigeria, South Africa, Canada, Indonesia, and Sri Lanka also showed active international collaboration (TLS=3). Overall, although only 15 countries met the publication threshold, they accounted for more than 90% of the total publications and citations, highlighting their central role in advancing research on content analysis for evaluating academic library websites.

Figure 5 highlights the international collaboration network of countries in research on content analysis for evaluating academic library websites, generated using VOSviewer. The network is organized into four distinct collaboration clusters, reflecting regional as well as intercontinental research partnerships. Cluster 1 (Red) comprises the United States (TP: 132; TLS: 5), United Kingdom (TP: 16; TLS: 3), Canada (TP: 9; TLS: 3), and Spain (TP: 7; TLS: 2), with the United States serving as the principal collaboration hub owing to its highest publication output and strongest network connectivity. Cluster 2 (Green) includes China (TP: 16; TLS: 2), Pakistan (TP: 18; TLS: 2), Malaysia (TP: 7; TLS: 5), and Sri Lanka (TP: 5; TLS: 3), demonstrating active collaboration among Asian countries. Cluster 3 (Blue) consists of India (TP: 88; TLS: 2), Indonesia (TP: 8; TLS: 3), and Iran (TP: 10; TLS: 1), highlighting regional collaboration within Asia, with India acting as the central contributor. Cluster 4 (Yellow) comprises Nigeria (TP: 13; TLS: 3), South Africa (TP: 11; TLS: 3), and Ghana (TP: 4; TLS: 1), representing collaborative research within the African region. Overall, the network indicates that the United States is the dominant global collaboration hub, while Malaysia, Canada, the United Kingdom, Nigeria, and South Africa exhibit strong collaborative link strengths, demonstrating that international research on content analysis for evaluating academic library websites is driven by a few well-connected countries linked through regional and cross-continental partnerships.

Top Journals

Table 7 presents the leading journals publishing research on content analysis for evaluating academic library websites. The dataset comprises 377 publications distributed across 145 sources, with the top 16 journals contributing 201 publications (53.32%), while the remaining 176 publications (46.68%) were published in 129 other journals, indicating that research is concentrated in a relatively small number of core publication outlets. Library Philosophy and Practice was the most productive journal, publishing 58 articles (15.38%), followed by the Journal of Academic Librarianship (19 publications; 5.04%)

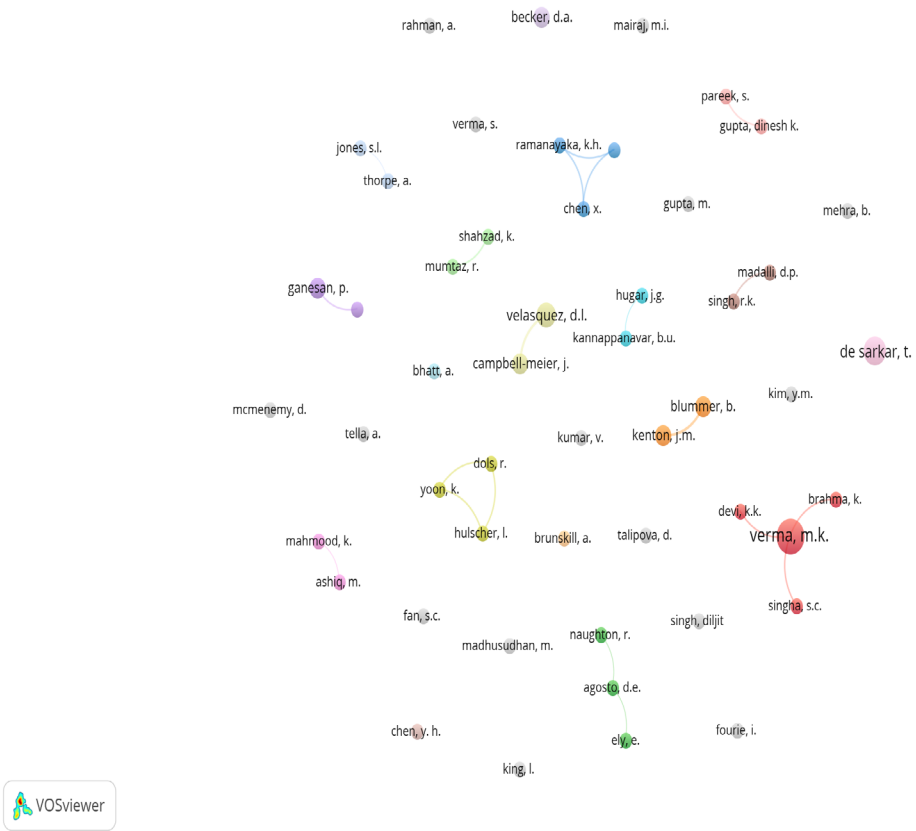


Figure 3: Top Collaborative Authors.

Table 4: Productive and Impactful Authors.

Top 6 Productive Authors								
Sl. No.	**Author**		**TP**	**TC**	**CCP**	**RCI**	**ICP**	**TLS**
1.	Verma, M.K.	Mizoram University, India	7	49	7.00	0.23	-	6
2.	De Sarkar, T.	University of Calcutta, India	5	18	3.60	0.12	-	0
3.	Velasquez, D.L.	University of South Australia, Australia	4	21	5.25	0.17	3	3
4.	Becker, D.A.	Hunter College Libraries, United States	3	46	15.33	0.50	-	0
5.	Blummer, B.	Center for Computing Sciences, United States	3	11	3.67	0.12	-	3
6.	Kenton, J.M.	Towson University, United States	3	11	3.67	0.12	-	3
Top 6 Impactful Authors								
Sl. No.	**Author**		**TP**	**TC**	**CCP**	**RCI**	**ICP**	**TLS**
1.	Mahmood, K.	University of the Punjab, Pakistan	2	158	79.00	2.58	1	1
2.	Chen, Y. H.	University at Albany, United States	2	101	50.50	1.65	-	0
3.	Ashiq, M.	Islamabad Model College for Boys, Pakistan	2	74	37.00	1.21	1	1
4.	Kim, Y.M.	University of Oklahoma, United States	2	61	30.50	1.00	-	0
5.	Madalli, D.P.	University of Calcutta, India	2	34	17.00	0.56	-	2
6.	Singh, R.K.	Indian Statistical Institute, India	2	34	17.00	0.56	-	2

TP: Total Publications; TC: Total Citations; CPP: Citations Per Paper; RCI: Relative Citation Index; ICP: International Collaborative Publications; TLS: Total Link Strength.

and The Electronic Library (17 publications; 4.51%). Despite its highest publication output, Library Philosophy and Practice recorded a comparatively lower citation impact (120 citations; CPP=2.07), whereas the Journal of Academic Librarianship achieved the highest citation count (402 citations) among the leading journals with a CPP of 21.16, followed by The Electronic Library (302 citations; CPP=17.76) and Library Hi Tech (139 citations; CPP=19.86). OCLC Systems and Services recorded the highest CPP (22.00) despite publishing only five articles, indicating a high average citation impact. In terms of journal quality, most of the leading sources are indexed in the Q1 and Q2 quartiles, including the Journal of Academic Librarianship, Journal of Web Librarianship, Information Technology and Libraries, Digital Library Perspectives, Journal of Librarianship and Information Science, and Library Hi Tech, reflecting the publication of high-quality research in the field. Overall, the findings demonstrate that while Library Philosophy and Practice dominates in publication volume, journals such as the Journal of Academic Librarianship, The Electronic Library, Library Hi Tech, and OCLC Systems and Services exert greater scholarly influence through higher citation impact, highlighting their significance as the principal publication venues for research on content analysis for evaluating academic library websites.

Bradford's Distribution of Journals

Bradford's Law analysis indicates that the literature on research on content analysis for evaluating academic library websites is concentrated in a limited number of core journals. The first Bradford zone, consisting of only six journals (4.14% of all 145 journals), published 134 articles (35.54%), identifying these titles as the principal publication outlets in the field. Zone 2 comprises 33 journals, contributing 127 articles (33.69%), while the remaining 106 journals in Zone 3 produced 116 articles (30.77%). This increasing dispersion of journals across successive zones confirms Bradford's Law, demonstrating that a relatively small group of specialized journals forms the core of the literature, whereas a much larger number of peripheral journals contribute fewer publications individually. The findings highlight Library Philosophy and Practice, Journal of Academic Librarianship, The Electronic Library, DESIDOC Journal of Library and Information Technology, Journal of Web Librarianship, and Information Technology and Libraries as the core journals for disseminating research on content analysis for evaluating academic library websites.

Top Trending Keywords

Table 8 and Figure 6 collectively illustrate the conceptual structure and major research themes in research on content analysis for evaluating academic library websites. Of the 935 author keywords identified in the dataset, 48 met the threshold of appearing in five or more publications and were included in the keyword co-occurrence analysis. The keyword "academic libraries" emerged as the most frequently occurring and influential term (TO=51; TLS=79), followed by "library website" (TO=36; TLS=45), "content analysis" (TO=33; TLS=55), "library websites" (TO=26; TLS=51), "websites" (TO=26; TLS=48), and "web 2.0" (TO=24; TLS=50), indicating that these concepts constitute the intellectual core of the research field. Other frequently occurring keywords, including "university libraries" (TO=15; TLS=28), "usability" (TO=15; TLS=21), "library services"

(TO=13; TLS=23), "academic library" (TO=12; TLS=22), "India" (TO=11; TLS=24), "accessibility" (TO=11; TLS=12), and "website evaluation" (TO=11; TLS=19), further demonstrate the emphasis on website assessment, digital services, usability, and regional research contributions.

The keyword co-occurrence network is organized into six thematic clusters, reflecting the evolution and diversity of research topics. Cluster 1 (Red) focuses on website evaluation and information services, comprising websites, website evaluation, evaluation, libraries, public libraries, information services, web content analysis, marketing, and COVID-19, highlighting studies related to evaluating library websites and improving digital information services. Cluster 2 (Green) represents website usability and user experience, centred on library website, usability, website usability, usability evaluation, usability testing, user experience, user satisfaction, website design, web design, and accessibility, emphasizing user-centred website evaluation and interface quality. Cluster 3 (Blue) is centred on content analysis, incorporating website, library, social media, web accessibility, world wide web, and webometrics, reflecting research on content evaluation, digital communication, and online visibility. Cluster 4 (Yellow) highlights academic library services and Web 2.0 technologies, including academic library, university library, library services, library 2.0, web 2.0 tools, e-resources, India, and LibGuides, indicating the growing adoption of interactive technologies and digital resources in academic libraries. Cluster 5 (Purple) focuses on academic library websites and digital library infrastructure, comprising academic libraries, academic library websites, library websites, library portal, library webpage, web 2.0, internet, digital libraries, and worldwide web, highlighting the development and management of web-based library platforms. Cluster 6 (Light Blue) represents university libraries and online information access, linking university libraries, web sites, information literacy, and related concepts associated with web-based learning and information support. Overall, the keyword distribution and co-occurrence network reveal that research on content analysis for evaluating academic library websites has evolved around six interconnected themes: website evaluation, usability and user experience, content analysis and web accessibility, Web 2.0-enabled library services, academic library website development, and digital information access. The strong occurrence and connectivity of academic libraries, library website, content analysis, library websites, and web 2.0 demonstrate their central role in shaping the research landscape, while emerging topics such as social media, website usability, web accessibility, information literacy, and COVID-19 indicate a continuing shift towards user-centred digital services,



Figure 4: Top 32 Affiliations Network.

Table 5: Productive and Impactful Affiliation.

Top 6 Productive Affiliation							
Sl. No.	**Affiliation**	**TP**	**TC**	**CPP**	**RCI**	**ICP**	**TLS**
1.	University of Calcutta, India	9	53	5.89	0.62	-	2
2.	Mizoram University, India	7	49	7.00	0.74	-	1
3.	University of North Texas, United States	6	8	1.33	0.14	1	0
4.	University of The Punjab, Pakistan	6	221	36.83	3.88	2	2
5.	Wuhan University, China	6	114	19.00	2.00	2	1
6.	University of Delhi, India	5	42	8.40	0.89	-	0
Top 6 Impactful Affiliation							
Sl. No.	**Affiliation**	**TP**	**TC**	**CPP**	**RCI**	**ICP**	**TLS**
1.	University of California, United States	3	133	44.33	4.67	1	1
2.	University of The Punjab, Pakistan	6	221	36.83	3.88	2	2
3.	University At Albany, United States	3	103	34.33	3.62	-	0
4.	Long Island University, United States	3	97	32.33	3.41	2	1
5.	Indian Statistical Institute, India	3	59	19.67	2.07	-	2
6.	Wuhan University, China	6	114	19.00	2.00	2	1

TP: Total Publications; TC: Total Citations; CPP: Citations Per Paper; RCI: Relative Citation Index; ICP: International Collaborative Publications; TLS: Total Link Strength.

Table 6: Productive Countries.

Sl. No.	Country	TP	TC	CPP	RCI	TLS
1.	United States	132	1568	11.88	1.25	5
2.	India	88	487	5.53	0.58	2
3.	Pakistan	18	268	14.89	1.57	2
4.	China	16	129	8.06	0.85	2
5.	United Kingdom	16	125	7.81	0.82	3
6.	Nigeria	13	125	9.62	1.01	3
7.	South Africa	11	113	10.27	1.08	3
8.	Iran	10	55	5.50	0.58	1
9.	Canada	9	121	13.44	1.42	3
10.	Indonesia	8	24	3.00	0.32	3
11.	Malaysia	7	49	7.00	0.74	5
12.	Spain	7	91	13.00	1.37	2
13.	Australia	5	41	8.20	0.86	0
14.	Sri Lanka	5	56	11.20	1.18	3
15.	Ghana	4	18	4.50	0.47	1
-	**Total of top 15 Countries**	**349**	**3270**	**9.37**	**0.99**	-
-	**Overall World Total**	**377**	**3577**	**9.49**	**1.00**	-
-	**Share of top 15 Countries**	**92.57**	**91.42**	-	-	-
-	**Share of World**	**7.43**	**8.58**	-	-	-

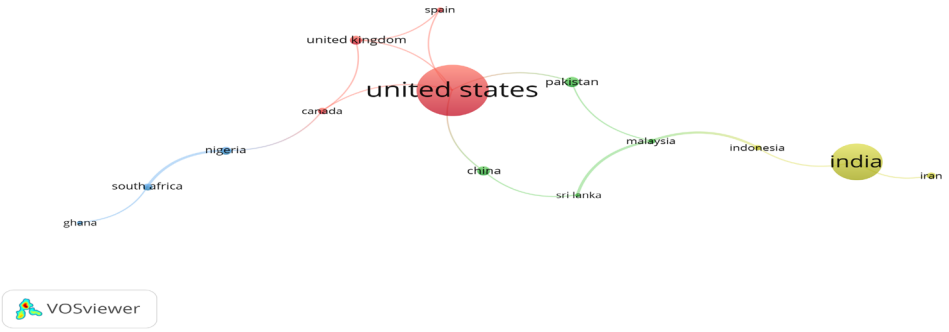


Figure 5: Top 15 Countries Network.



Figure 6: Top Author Keywords.

Table 7: Top Journals.

Sl. No.	Source Title	TP	%TP	TC	CPP	FP	SJR
1.	Library Philosophy and Practice	58	15.38	120	2.07	4	Q2 (2020)
2.	Journal of Academic Librarianship	19	5.04	402	21.16	3	Q1 (2025)
3.	Electronic Library	17	4.51	302	17.76	1	Q2 (2025)
4.	DESIDOC Journal of Library and Information Technology	15	3.98	113	7.53	3	Q2 (2025)
5.	Journal of Web Librarianship	15	3.98	138	9.20	2	Q1 (2025)
6.	Information Technology and Libraries	10	2.65	131	13.10	-	Q1 (2025)
7.	Reference Services Review	9	2.39	81	9.00	-	Q2 (2025)
8.	Digital Library Perspectives	8	2.12	124	15.50	1	Q1 (2025)
9.	Annals of Library and Information Studies	7	1.86	62	8.86	1	Q3 (2025)
10.	Evidence Based Library and Information Practice	7	1.86	6	0.86	-	Q3 (2025)
11.	International Information and Library Review	7	1.86	128	18.29	-	Q2 (2025)
12.	Journal of Librarianship and Information Science	7	1.86	107	15.29	1	Q1 (2025)
13.	Library Hi Tech	7	1.86	139	19.86	-	Q1 (2025)
14.	Journal of Indian Library Association	5	1.33	1	0.20	-	Q4 (2025)
15.	Medical Reference Services Quarterly	5	1.33	33	6.60	-	Q2 (2025)
16.	OCLC Systems and Services	5	1.33	110	22.00	-	-
-	Other 129 Journals	176	46.68	1580	8.98	21	-
-	**Grand total**	**377**	**100.00**	**3577**	**9.49**	**37**	-

TP: Total Publications; %TP: Percentage of Total Publications; TC: Total Citations; CPP: Citations Per Paper; FP: Funded Publications.

accessibility, and the ongoing digital transformation of academic libraries.

Citation Performance of Publications

Table 9 presents the citation distribution of publications in research on content analysis for evaluating academic library websites. Of the 377 publications, 305 (80.90%) received at least one citation, while 72 publications (19.10%) remained uncited. Most publications (146; 38.73%) received between 1 and 9 citations, followed by 96 publications (25.46%) with 10-19 citations and 29 publications (7.69%) with 20-29 citations. Only 25 publications (6.63%) received 30 or more citations, indicating that highly cited studies constitute a relatively small proportion of the literature. Furthermore, only four publications (1.07%) achieved 80 or more citations, with a single publication receiving over 100 citations. This distribution reflects the typical bibliometric pattern in which a small number of highly cited publications account for a substantial share of scholarly influence, whereas the majority of publications receive relatively modest citation counts.

Highly Cited Publications

Table 10 presents the 15 most highly cited publications in research on content analysis for evaluating academic library websites. The most influential publication was "A Study of Web 2.0 Applications in Library Websites" by Chua and Goh (2010), published in *Library and Information Science Research*, with 129 citations. It was followed by Yoon and Schultz (2017), whose study on research data management services in US academic libraries received 97 citations, and Mahmood and Richardson (2011), whose review on the adoption of Web 2.0 in US academic libraries accumulated 94 citations. Other highly cited studies include Xu *et al.* (2009) on the implications of Web 2.0 in academic libraries (88 citations), Boateng and Liu (2014) on Web 2.0 applications in academic libraries (68 citations), and Click and Petit (2010) on social networking and information literacy (67 citations). More recent influential publications include Ashiq *et al.* (2022) on the transformation of libraries during the COVID-19 pandemic (64 citations) and studies by Chen and Chengalur-Smith (2015) and Ocholla and Ocholla (2020), each receiving 63 citations. The top publications were predominantly published in high-impact journals such as *Library and Information Science Research, Journal of Academic Librarianship, The Electronic Library, Library Hi Tech*, and *Digital Library Perspectives*. Thematically, these highly cited studies emphasize Web 2.0 technologies, library website evaluation, research data management, usability, digital literacy, information literacy, and the digital transformation of academic libraries, indicating that these topics have had the greatest scholarly influence and have significantly shaped the evolution of research on content analysis for evaluating academic library websites.

Table 8: Top Author Keywords.Top of FormBottom of Form

Sl. No.	Keyword	TO	TLS	Sl. No.	Keyword	TO	TLS
1.	academic libraries	51	79	25.	libguides	8	10
2.	library website	36	45	26.	web accessibility	8	11
3.	content analysis	33	55	27.	website design	8	17
4.	library websites	26	51	28.	library portal	7	8
5.	websites	26	48	29.	public library	7	11
6.	web 2.0	24	50	30.	social media	7	21
7.	public libraries	18	20	31.	user experience	7	13
8.	university libraries	15	28	32.	digital libraries	6	10
9.	usability	15	21	33.	internet	6	15
10.	libraries	13	18	34.	marketing	6	9
11.	library services	13	23	35.	universities	6	15
12.	academic library	12	22	36.	usability testing	6	8
13.	accessibility	11	12	37.	user satisfaction	6	12
14.	India	11	24	38.	web 2.0 tools	6	11
15.	website	11	19	39.	website usability	6	13
16.	website evaluation	11	19	40.	worldwide web	6	10
17.	library	10	11	41.	covid-19	5	5
18.	university library	10	14	42.	e-resources	5	9
19.	web sites	10	24	43.	information literacy	5	9
20.	evaluation	9	16	44.	library 2.0	5	11
21.	usability evaluation	9	19	45.	library webpage	5	8
22.	world wide web	9	21	46.	web content analysis	5	9
23.	academic library websites	8	15	47.	web design	5	10
24.	information services	8	10	48.	webometrics	5	5

TO: Total Occurrences; TLS: Total Link Strength.

Table 9: Citation Performance

Sl. No.	Citation Range (Cited by)	TC	%TP
1.	≥100	1	0.27
2.	90-99	2	0.53
3.	80-89	1	0.27
4.	70-79	0	0
5.	60-69	6	1.59
6.	50-59	2	0.53
7.	40-49	6	1.59
8.	30-39	16	4.24
9.	20-29	29	7.69
10.	10-19	96	25.46
11.	1-9	146	38.73
12.	0	72	19.1
-	**Grand Total**	**377**	**100.00**

Table 10: Top 15 Cited Publications.

Sl. No.	Authors	Title	Source title	Year	DC	TC
1.	Chua A.Y.K.; Goh D.H.	A study of Web 2.0 applications in library websites	Library and Information Science Research	2010	Article	129
2.	Yoon A.; Schultz T.	Research data management services in academic libraries in the US: A content analysis of libraries' websites	College and Research Libraries	2017	Article	97
3.	Mahmood K.; Richardson J.V., Jr.	Adoption of Web 2.0 in US academic libraries: A survey of ARL library websites	Program	2011	Review	94
4.	Xu C.; Ouyang F.; Chu H.	The Academic Library Meets Web 2.0: Applications and Implications	Journal of Academic Librarianship	2009	Article	88
5.	Boateng F.; Liu Y.Q.	Web 2.0 applications' usage and trends in top US academic libraries	Library Hi Tech	2014	Article	68
6.	Click A.; Petit J.	Social networking and Web 2.0 in information literacy	International Information and Library Review	2010	Article	67
7.	Ashiq M.; Jabeen F.; Mahmood K.	Transformation of libraries during Covid-19 pandemic: A systematic review	Journal of Academic Librarianship	2022	Article	64
8.	Chen Y.-H.; Chengalur-Smith I.	Factors influencing students' use of a library Web portal: Applying course-integrated information literacy instruction as an intervention	Internet and Higher Education	2015	Article	63
9.	Ocholla D.N.; Ocholla L.	Readiness of academic libraries in South Africa to research, teaching and learning support in the Fourth Industrial Revolution	Library Management	2020	Article	63
10.	Baro E.E.; Obaro O.G.; Aduba E.D.	An assessment of digital literacy skills and knowledge-based competencies among librarians working in university libraries in Africa	Digital Library Perspectives	2019	Article	60
11.	Pant A.	Usability evaluation of an academic library website Experience with the Central Science Library, University of Delhi	Electronic Library	2015	Article	52
12.	Ko E.H.T.; Chiu D.K.W.; Lo P.; Ho K.K.W.	Comparative Study on m-Learning Usage Among LIS Students from Hong Kong, Japan and Taiwan	Journal of Academic Librarianship	2015	Article	47
13.	Temiz S.; Salelkar L.P.	Innovation during crisis: exploring reaction of Swedish university libraries to COVID-19	Digital Library Perspectives	2020	Article	46
14.	Kim Y.-M.	Users' perceptions of university library websites: A unifying view	Library and Information Science Research	2011	Article	45
15.	Aharony N.	An analysis of American academic libraries' websites: 2000-2010	Electronic Library	2012	Review	45

DC: Document Type; TC: Total Citation.

CONCLUSION

This study provides a comprehensive bibliometric overview of research on content analysis for evaluating academic library websites published between 2002 and 2025. The findings reveal a steady growth in research output, particularly after 2018, highlighting the increasing importance of academic library websites in supporting digital information services. Research productivity and scholarly impact were concentrated among a relatively small group of authors, institutions, countries, and journals, with the United States leading in publication output and collaboration. Keyword co-occurrence analysis identified six major research themes centred on academic libraries, library websites, content analysis, website usability, Web 2.0 technologies, and digital library services, reflecting the evolution of the field towards user-centred and technology-driven website evaluation. Furthermore, the Degree of Collaboration (0.68) indicates that collaborative research has become the predominant mode of scholarly communication, while Bradford's Law identified a small core of journals responsible for a substantial share of the literature.

Although the study provides valuable insights into the publication trends, collaboration patterns, and intellectual structure of the field, it is limited to English-language publications indexed in the Scopus database. Future research may incorporate additional databases such as Web of Science, Dimensions, and Lens, while exploring emerging topics including artificial intelligence, web accessibility, user analytics, semantic web technologies, and next-generation digital library platforms. Overall, the findings offer a valuable reference for researchers, librarians, policymakers, and website developers, and provide a foundation for advancing research on content analysis for evaluating academic library websites.

ABBREVIATIONS

TP: Total Publications; **%TP:** Percentage of Total Publications; **TC:** Total Citations; **CPP:** Citations Per Paper; **ICP:** International Collaborative Publications; **FP:** Funded Publications; **RCI:** Relative Citation Index; **TLS:** Total Link Strength; **DC:** Degree of Collaboration; **SJR:** SCImago Journal Rank; **TO:** Total Occurrences.

CONFLICT OF INTEREST

The authors declare that there is no conflict of interest.

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SUPPLEMENTARY TABLES

Supplementary Table 1: Top 51 authors with 2 and more publications.

SL.No.	Author	Affiliation	TP	TC	CCP	RCI	TLS
1	Verma, M.K.	Mizoram University, India	7	49	7.00	0.74	6
2	De Sarkar, T.	University of Calcutta, India	5	18	3.60	0.38	0
3	Velasquez, D.L.	University of South Australia, Australia	4	21	5.25	0.55	3
4	Becker, D.A.	Hunter College Libraries, United States	3	46	15.33	1.62	0
5	Blummer, B.	Centre for Computing Sciences, United States	3	11	3.67	0.39	3
6	Kenton, J.M.	Towson University, United States	3	11	3.67	0.39	3
7	Campbell-Meier, J.	Victoria University of Wellington, New Zealand	3	8	2.67	0.28	3
8	Ganesan, P.	Alagappa University, India	3	3	1.00	0.11	2
9	Mahmood, K.	University of the Punjab, Pakistan	2	158	79.00	8.32	1
10	Chen, Y. H.	University at Albany, United States	2	101	50.50	5.32	0
11	Ashiq, M.	Islamabad Model College for Boys, Pakistan	2	74	37.00	3.90	1
12	Kim, Y.M.	University of Oklahoma, United States	2	61	30.50	3.21	0
13	Madalli, D.P.	University of Calcutta, India	2	34	17.00	1.79	2
14	Singh, R.K.	Indian Statistical Institute, India	2	34	17.00	1.79	2
15	Madhusudhan, M.	University of Delhi, India	2	32	16.00	1.69	0
16	Ely, E.	University of Wisconsin-Madison, United States	2	31	15.50	1.63	1
17	Mehra, B.	University of Tennessee, United States	2	31	15.50	1.63	0
18	Fan, S.C.	The University of Tennessee Health Science Centre, United States	2	30	15.00	1.58	0
19	Kumar, V.	Babasaheb Bhimrao Ambedkar University, India	2	30	15.00	1.58	0
20	Brunskill, A.	University of Illinois at Chicago, United States	2	28	14.00	1.48	0
21	Singh, Diljit	University of Malaya, Malaysia	2	27	13.50	1.42	0
22	Devi, K.K.	Mizoram University, India	2	26	13.00	1.37	2
23	Dols, R.	St. Catherine University, United States	2	22	11.00	1.16	4
24	Hulscher, L.	St. Catherine University, United States	2	22	11.00	1.16	4
25	Yoon, K.	St. Catherine University, United States	2	22	11.00	1.16	4
26	Jones, S.L.	Indiana University Kokomo, United States	2	21	10.50	1.11	1
27	Brahma, K.	Mizoram University, India	2	19	9.50	1.00	2
28	Rahman, A.	University of Delhi, India	2	19	9.50	1.00	0
29	Thorpe, A.	Indiana University Kokomo, United States	2	19	9.50	1.00	1
30	Gupta, Dinesh K.	Vardhaman Mahaveer Open University, India	2	18	9.00	0.95	2
31	Pareek, S.	Vardhaman Mahaveer Open University, India	2	18	9.00	0.95	2

32	Hugar, J.G.	Dnyanprassarak Mandal's College and Research Centre, India	2	17	8.50	0.90	1
33	Chen, X.	Wuhan University of Technology, China	2	16	8.00	0.84	4
34	Ramanayaka, K.H.	Wuhan University, China	2	16	8.00	0.84	4
35	Shi, B.	Wuhan University of Technology, China	2	16	8.00	0.84	4
36	Bhatt, A.	Gujarat University, India	2	14	7.00	0.74	0
37	Fourie, I.	University of Pretoria, South Africa	2	14	7.00	0.74	0
38	Mairaj, M.I.	University of the Punjab, Pakistan	2	14	7.00	0.74	0
39	Tella, A.	University of Ilorin, Nigeria	2	13	6.50	0.68	0
40	Gupta, M.	University of Delhi, India	2	12	6.00	0.63	0
41	Mcmenemy, D.	University of Strathclyde, United Kingdom	2	11	5.50	0.58	0
42	King, L.	University of the Western Cape, South Africa	2	9	4.50	0.47	0
43	Kannappanavar, B.U.	Shyadri Arts and Commerce College, India	2	7	3.50	0.37	1
44	Agosto, D.E.	Drexel University, United States	2	6	3.00	0.32	2
45	Ambika, C.A.	K.S. School of Engineering and Management, Bengaluru, India	2	3	1.50	0.16	2
46	Naughton, R.	The City University of New York, United Kingdom	2	3	1.50	0.16	1
47	Talipova, D.	Tashkent University of Information Technologies, Uzbekistan	2	2	1.00	0.11	0
48	Mumtaz, R.	National Library of Pakistan (NLP), Pakistan	2	1	0.50	0.05	2
49	Shahzad, K.	Government College University, Pakistan	2	1	0.50	0.05	2
50	Singha, S.C.	Don Bosco College, India	2	1	0.50	0.05	2
51	Verma, S.	Babasaheb Bhimrao Ambedkar University, India	2	0	0.00	0.00	0
	Total of Top 51 Authors		**117**	**1220**	**30.57**	**3.22**	
	Overall World Total		**377**	**3577**	**9.49**	**1.00**	
	Share of top 51 Authors		**31.03**	**34.11**			
	Share of World		**68.97**	**65.89**			

Supplementary Table 2: Top 32 Affiliations with 3 and more publications.

Sl. No.	Affiliation	TP	TC	CPP	RCI	TLS
1.	University of Calcutta, India	9	53	5.89	0.62	2
2.	Mizoram University, India	7	49	7.00	0.74	1
3.	University of North Texas, United States	6	8	1.33	0.14	0
4.	University of The Punjab, Pakistan	6	221	36.83	3.88	2
5.	Wuhan University, China	6	114	19.00	2.00	1
6.	University of Delhi, India	5	42	8.40	0.89	0
7.	Alagappa University, India	4	4	1.00	0.11	0
8.	Centre For Computing Sciences, United States	4	43	10.75	1.13	3
9.	Hunter College, United States	4	66	16.50	1.74	0
10.	The City University of New York, United Kingdom	4	30	7.50	0.79	0
11.	University Of Illinois at Urbana-Champaign, United States	4	37	9.25	0.97	0
12.	University of Oklahoma, United States	4	69	17.25	1.82	1
13.	University of South Australia, Australia	4	21	5.25	0.55	3
14.	Babasaheb Bhimrao Ambedkar University, India	3	8	2.67	0.28	1
15.	Drexel University, United States	3	9	3.00	0.32	1
16.	Government College University, Pakistan	3	3	1.00	0.11	0
17.	Indian Statistical Institute, India	3	59	19.67	2.07	2
18.	Indiana University Kokomo, United States	3	27	9.00	0.95	0
19.	Long Island University, United States	3	97	32.33	3.41	1
20.	The Ohio State University, United States	3	21	7.00	0.74	0
21.	The Open University of Sri Lanka, Sri Lanka	3	33	11.00	1.16	2
22.	Towson University, United States	3	11	3.67	0.39	3
23.	Universiti Teknologi Mara, Malaysia	3	22	7.33	0.77	2
24.	University At Albany, United States	3	103	34.33	3.62	0
25.	University of California, United States	3	133	44.33	4.67	1
26.	University of Ghana, Ghana	3	12	4.00	0.42	0
27.	University of Ilorin, Nigeria	3	16	5.33	0.56	2
28.	University of Malaya, Malaysia	3	37	12.33	1.30	3
29.	University of Pretoria, South Africa	3	37	12.33	1.30	0
30.	University of South Africa, South Africa	3	3	1.00	0.11	2
31.	University of Strathclyde, United Kingdom	3	14	4.67	0.49	0
32.	Victoria University of Wellington, New Zealand	3	8	2.67	0.28	3
-	**Total of top 32 Affiliation**	**124**	**1410**	**11.37**	**1.20**	**36**
-	**Overall World Total**	**377**	**3577**	**9.49**	**1.00**	-
-	**Share of top 32 Affiliation**	**32.89**	**39.42**	-	-	-