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Research Article

Webometric Evaluation of Prominent Educational Repositories in the South Asian Region

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ABSTRACT

Educational repositories play a vital role in enhancing access to scholarly resources and preserving academic output. While many previous studies have examined library websites, webometric investigations of educational repositories in the South Asian region at an international level remain limited. This study aims to evaluate leading educational repositories in South Asia using both web content assessment and webometric analysis in order to understand their visibility, structural quality, and functional effectiveness. Data for the study were collected from the OpenDOAR (Directory of Open Access Repositories). Webometric indicators were measured using the MOZ link analysis tool, including Domain Authority, Page Authority, in-links, and out-links, while Google was used for link verification. In addition, a structured checklist consisting of 19 criteria was employed to assess the content and functional features of the repository websites. The findings revealed that MOIST - Multidisciplinary Oceanic Information System and Shodhganga had the highest Simple, External, and Internal Web Impact Factors among the repositories studied. The websites used a variety of top-level domains, mainly.*ac* and. *org*. Approximately 87.5% of the repositories had a Domain Authority below 50, whereas only 25% had a Page Authority below 50, indicating that although the overall domain strength of most repositories was relatively low, individual pages were comparatively better optimized and demonstrated stronger link performance. The study also found that several important features were largely missing from the repository websites, including customer service information, FAQ sections, awards, usage statistics, grants and fellowships, and online discussion forums. The study highlights significant variations in the web presence and functional quality of educational repositories in South Asia. Although some repositories perform well in terms of web impact, many lack essential content and support features that could enhance usability and engagement. The findings provide practical insights for repository administrators to improve website design, organization, and maintenance, and they contribute original evidence to the limited body of webometric research on South Asian educational repositories.

Keywords: Repositories, South Asia, Web Impact Factor, Webometric Analysis, Website Content Analysis.

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INTRODUCTION

A repository is a digital platform designed to collect, manage, preserve, and disseminate diverse forms of digital content, including documents, datasets, multimedia, and images. In academic and research contexts, repositories provide the accessibility and discoverability of scholarly works. Repositories (IRs) are generally maintained by universities, research organizations, and government agencies and play an important role in supporting open access, enhancing scholarly visibility, and facilitating global knowledge exchange (Bashir *et al*., 2022; Aguillo, 2020). To serve diverse groups of the different users, including faculty, Scholars, students, and the wider public, these platforms must maintain well-structured, informative, and user-friendly websites (Subiyakto *et al*., 2021).

Institutional Repositories typically provide access to theses, dissertations, journal articles, conference proceedings, datasets, and multimedia resources, along with information on submission procedures, copyright policies, technical support, and usage guidelines (Momeni *et al*., 2025). Disciplinary repositories are online platforms that store and share research works from a specific subject or field, making it easier for researchers in that area to find relevant information.

Aggregating repositories are platforms that gather information from many different repositories and bring it together in one place so that users can search and access content more easily. As interconnected collections of web pages, they deliver academic materials in formats such as text, images, audio, and video. Given

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their role as primary academic information sources, the quality and usability of repository websites require periodic evaluation of their structure, search engine performance, information accuracy and reliability, and overall user experience (Gul *et al*., 2020; Brahma & Verma, 2018a).

Quantitative website assessments using indicators including Web Impact Factor (WIF), Domain Authority (DA), and Page Authority (PA) provide valuable insights into a repository's visibility, link structure, and online prominence (Ghosh & Roy, 2021a, 2021b). For repositories with an international audience, delivering timely, relevant, and accessible content is essential (Bashir *et al*., 2022). However, institutional repositories vary widely in quality; some lack essential information and fail to deliver optimal user experiences (Subiyakto *et al*., 2021). While earlier studies have evaluated academic, public, and national library websites, research focusing specifically on the webometric analysis of educational repositories remains limited, particularly in the South Asian region, where digital platforms are becoming increasingly critical for academic communication (Gul *et al*., 2020). Webometrics, a specialized field involving the quantitative analysis of online content and structure (Ingwersen, 1998), encompasses four primary dimensions: (1) analysis of website content, (2) examination of internal and external link structures, (3) analysis of user behavior and traffic patterns, and (4) technological examination (Bamgbose *et al*., 2025). By applying these parameters, the study provides an in-depth understanding of the visibility, accessibility, and overall web performance of selected repositories within South Asia and beyond (Verma & Brahma, 2017a). Given this gap, it is necessary to assess the digital presence and performance of South Asian Educational Repositories. Search Engine Optimization (SEO) tools including MOZ, Alexa, and Small SEO Tools offer indicators related to backlinks, referring domains, search performance, and visibility measures, enabling comprehensive webometric evaluations (Stephen, 2019; Tavosi & Naghshineh, 2023).

The increasing expansion of online scholarly communication and open access initiatives has enhanced the importance of institutional and educational digital repositories in improving research visibility and accessibility. In the South Asian region, the development of such platforms is increasing steadily. However, their web visibility, link structure, and overall impact remain uneven and underexplored. Existing studies are mostly limited to individual institutions or countries, while differences in infrastructure and linking practices affect their performance. The lack of systematic evaluation using a range of webometric indicators makes it difficult to assess and improve repository effectiveness. Therefore, webometric analysis is essential for evaluating their performance and global reach. The study assesses the online content of the selected educational repositories in the South Asian region and analyzes their web structure, visibility, and link dynamics using established webometric indicators and SEO metrics.

LITERATURE REVIEW

A number of studies have applied different webometric indicators to evaluate the web presence and visibility of academic and research platforms. Verma and Brahma (2017a, 2017b) examined Central Universities in North East India and reported variations in domain authority, internal linking structures, and overall web impact, with institutions such as Tezpur University and Mizoram University demonstrating strong performance across different indicators. Similarly, Gupta and Singh (2020) identified the Indian Statistical Institute (ISI), Tezpur campus, as having the highest visibility among its units, while studies on national libraries also highlighted disparities in WIF performance across South Asian institutions. Brahma and Verma (2018b) further observed that Indian public library websites require improvement in internal linking structures, and Dhar and Gayan (2022) reported generally low domain and page authority among international library associations. Although these studies consistently emphasize the importance of WIF as a measure of web visibility, they are largely confined to specific institutions or sectors and often rely on single-source tools such as MOZ Link Explorer, thereby limiting the comprehensiveness and wider applicability of their results.

In addition to link-based indicators, Domain Authority (DA) and Page Authority (PA) have been widely used to assess the influence and credibility of academic websites. Patel and Vyas (2021) analyzed top-ranked Indian universities using multiple tools, including Ahrefs, Alexa, and Scopus, and found significant variations in web traffic, backlink profiles, and research output across institutions. Similarly, Kaur and Sharma (2020) reported that Indian Institutes of Technology (IITs) demonstrate strong visibility but face challenges related to mobile responsiveness and accessibility. Thiruppathi and Muthumani (2024) further highlighted the need for improving SEO practices and backlink structures in Open Educational Resource (OER) platforms, while Dhar and Gayan (2022) confirmed low DA and PA scores among international organizations. Collectively, these studies suggest that while DA and PA are effective indicators of online authority and influence, they do not fully capture usability and accessibility aspects, indicating the need for more comprehensive evaluation frameworks.

Beyond quantitative webometric indicators, research has also examined the information quality, user accessibility, and functional aspects of academic web platforms and repositories. Studies indicate that countries such as India, Sri Lanka, and Bangladesh are leading in repository development within South Asia, with DSpace emerging as the most widely used platform (Gul *et al*., 2020). However, many repositories lack essential features such as clear content policies, usage statistics, and interface customization. Singha and Verma (2021), using a multi-parameter

evaluation framework, found that none of the veterinary institute library websites achieved an "Outstanding" rating, while Kaur and Sharma (2020) similarly identified limitations in accessibility and mobile optimization. Additional studies on library consortia and university rankings reveal inconsistencies between web presence and academic impact (Sarwar *et al*., 2021). These findings collectively highlight that content quality, usability, and accessibility are critical determinants of repository effectiveness and must be evaluated alongside webometric indicators.

Recent international research further underscores the growing importance of technological advancements and webometric evaluation in improving repository performance. Saeidnia *et al*. (2024) emphasized the role of artificial intelligence in enhancing webometric analysis, while Momeni *et al*. (2025) demonstrated that effective data citation practices significantly improve repository visibility and scholarly communication. Studies from Spain have reported limited search engine visibility of repositories, restricting their accessibility and impact (Orduña-Malea *et al*., 2024), whereas research in Malaysia indicates that research-intensive universities tend to dominate repository visibility (Ismail *et al*., 2021). These international perspectives provide valuable benchmarks; however, their findings may not be directly transferable to the South Asian context due to differences in technological infrastructure and repository development.

Institutional repositories are instrumental in promoting scholarly communication by improving the visibility, accessibility, and citation of research outputs through open access (Asadi *et al*., 2019). However, disparities in repository development can significantly affect research visibility and impact, as observed in developing regions such as Bangladesh (Akhi & Yesmin, 2025). Furthermore, reliance solely on traditional citation metrics is insufficient for evaluating repository performance, as they do not capture online engagement and accessibility. In this context, altmetric indicators provide additional insights into user interaction and digital reach (Verma & Madhusudhan, 2019). Similarly, Osinska and Klimas (2021), in their study titled "Mapping Science: Tools for Bibliometric and Altmetric Studies," highlighted the role of social media visibility and online platforms in influencing the dissemination and accessibility of scholarly tools and research communication. These observations suggest the need for integrating multiple evaluation approaches, combining webometric indicators with content and engagement metrics.

A review of existing literature indicates that relatively few studies have examined institutional repositories in the South Asian region, with most focusing on web content analysis rather than comprehensive webometric evaluation (Gul *et al*., 2020). Among the notable contributions in this area, the study conducted by Devi and Verma (2019) on the library websites of National Institutes of Technology (NITs) in India presents a significant and systematic evaluation of website design trends and content features. The study comprehensively assessed 27 NIT library websites using 108 evaluation criteria under 13 major categories, offering valuable insights into website structure, usability, accessibility, and download performance. Their work contributed significantly to understanding the standard and functional effectiveness of academic library websites in India, while also providing a useful foundation for subsequent website evaluation studies.

Moreover, rapid advancements in web technologies, including artificial intelligence, automated systems, semantic web applications, and enhanced search engine optimization techniques, have significantly transformed the digital landscape, rendering many earlier evaluations partially outdated. Despite these developments, there remains a lack of systematic, multi-dimensional studies that integrate link structure analysis, technological features, SEO indicators, and performance metrics across repositories in the South Asian region.

Therefore, a clear research gap exists in the comprehensive webometric evaluation of educational repositories in South Asia. Most existing studies are limited in scope, focusing on individual institutions, single indicators, or specific aspects of repository performance. A holistic and comparative analysis incorporating multiple webometric indicators, SEO metrics, content evaluation, and technological assessment is necessary to better understand repository visibility, accessibility, and overall impact. Accordingly, the present study is undertaken to fill this gap and provide an in-depth assessment of educational repositories in the South Asian region.

Objectives of the Study

- To evaluate the web content and functional features of the selected educational repositories in the region.
- To determine the domain authority and page authority of these repositories.
- To assess the different Web impact Factors of the selected educational repositories in the South Asian region.
- Rank the selected educational repositories on the basis of Impact Factor

METHODOLOGY

Study design

In this study, the leading eight (08) educational repositories from South Asian countries were examined based on their content. It was found that Bhutan and the Maldives had no educational repositories. The study adopts a quantitative webometric approach combined with web content analysis. The assessment utilized a website content evaluation framework consisting of 19 criteria. In addition, webometric techniques were applied to examine the overall standard of the repository websites.

Sample

Repositories were selected based on their content, accessibility, and English language interface to ensure wider visibility, usability, and reliable webometric evaluation. These repositories were indexed in OpenDOAR (Directory of Open Access Repositories). Maldives and Bhutan were excluded from the study, as they do not have any repositories listed in Open DOAR. Accordingly, a total of eight repositories were selected, as shown in Table 1.

Data Collection

Website content information for the selected repositories was gathered through visits to each repository's official website. For the assessment of various web metrics, the free version of MOZ previously called as "Open Site Explorer" was employed. Moz is a widely recognized online analytics platform that provides comprehensive link data and domain-level metrics. The database covers around 45.5 trillion links, 8.7 trillion web pages, and 1 billion domains. This tool has also been widely applied in earlier research studies (Moz, 2025a). The webometric data were gathered and cross-checked between 9th to 15th August 2025 to ensure uniformity in data collection in all selected repositories, as these indicators are highly dynamic in nature and subject to frequent fluctuations owing to search engine indexing changes and crawler fluctuations. Collecting the information within a fixed and uniform period helped minimize temporal bias and enhanced the comparability of the findings.

To obtain webometric indicators such as Domain Authority (DA), Page Authority (PA), Internal Links (IL), External Links (EL), Total Links (TL), and referring domains (RD), the URLs of the targeted Educational Repositories were entered into the MOZ search interface.

Webometric Indicators and Tools

In this study, several webometric indicators are applied to evaluate website performance, along with the three forms of the Web Impact Factors (WIF).

DA measures the general credibility associated with a domain or subdomain on a scale from 1–100, where greater scores reflect a stronger online presence (Moz, 2025b). PA, also rated on a 1–100 scale, represents the likelihood of specific webpages ranking well within search engine rankings (Moz, 2025c).

MOZ was chosen because its Domain Authority (DA) and Page Authority (PA) provide link-analysis metrics measured on a uniform scale from 1 to 100, thereby enabling reliable comparisons among repositories. These indicators closely correspond with webometric methods that focus on the prominence of web links and Web Impact Factor (WIF). Moreover, the presence of reproducible data supports methodological uniformity across the selected repositories. Additionally, MOZ Link Explorer offers publicly available metrics that improve transparency and research replicability, while many comparable tools generally function through subscription-based services (Moz, 2025a).

The Web Impact Factor (WIF) is analyzed using three measures: Simple Web Impact Factor (SWIF), Internal Web Impact Factor (IWIF), and External Web Impact Factor (EWIF). SWIF reflects the overall link intensity by relating total links (internal and external) to the total number of webpages. IWIF captures the share of internal links within the total webpages, whereas EWIF

Table 1: Selected Educational Repositories in South Asian Region.

Name of the Repository	Acronym	Website (URL)	Top-Level Domain (TLD)	Country
Shodhganga	SG	https://shodhganga.inflibnet.ac.in/	.ac.in	India
Indian Academy of Sciences: Publications of Fellows	IAS	https://repository.ias.ac.in/	.ac.in	India
Electronic Thesis and Dissertation of Indian Institute of Science	etd@IISc	https://etd.iisc.ac.in/	.ac.in	India
MOIST - Multidisciplinary Oceanic Information SysTem	MOIST	https://moist.rm.ingv.it/	.it	Afghanistan
Institutional-Repository, University of Moratuwa	IR-UoM	https://dl.lib.uom.lk/home	.lk	Sri Lanka
HimalDoc	HD	https://lib.icimod.org/	.org	Nepal
ecommons@AKU	AKUeC	https://ecommons.aku.edu/	.edu	Pakistan
BRAC Institutional Repository	BRAC	https://dspace.bracu.ac.bd/	.ac.bd	Bangladesh

represents the share of external links in relation to the total webpages (Verma & Brahma, 2017a, 2017b).

The total page count for each educational repository was retrieved using the Google search "site:" query combined with the repository web address. These computational methods were initially introduced by Ingwersen (1998) and have since been extensively adopted in webometric research (Ab Rashid, 2025; Simpkins, 2019). All quantitative calculations in the present analysis were performed using Microsoft Excel 2021. The formulas used for determining each WIF variant are outlined below.

$$\text{SWIF} = \frac{\text{Total number of links}}{\text{Total number of Webpages}} \quad (1)$$

$$\text{IWIF} = \frac{\text{Total number of Internal links}}{\text{Total number of Webpages}} \quad (2)$$

$$\text{EWIF} = \frac{\text{Total number of External links}}{\text{Total number of Webpages}} \quad (3)$$

To enable comparative interpretation, DA and PA were further expressed as percentage contributions. The percentage of DA and PA for each repository was calculated using formula (4) and formula (5), respectively:

$$\text{Percentage of DA} = \frac{\text{DA of a repository}}{\sum \text{DA of all repositories}} \times 100 \quad (4)$$

$$\text{Percentage of PA} = \frac{\text{PA of a repository}}{\sum \text{PA of all repositories}} \times 100 \quad (5)$$

These indicators reflect the proportional contribution of each repository to the total DA and PA values, enabling meaningful comparison of web visibility across repositories.

The study employs descriptive statistical methods, ratio analysis, and percentage-based normalization techniques to systematically evaluate and compare the webometric performance of the selected repositories.

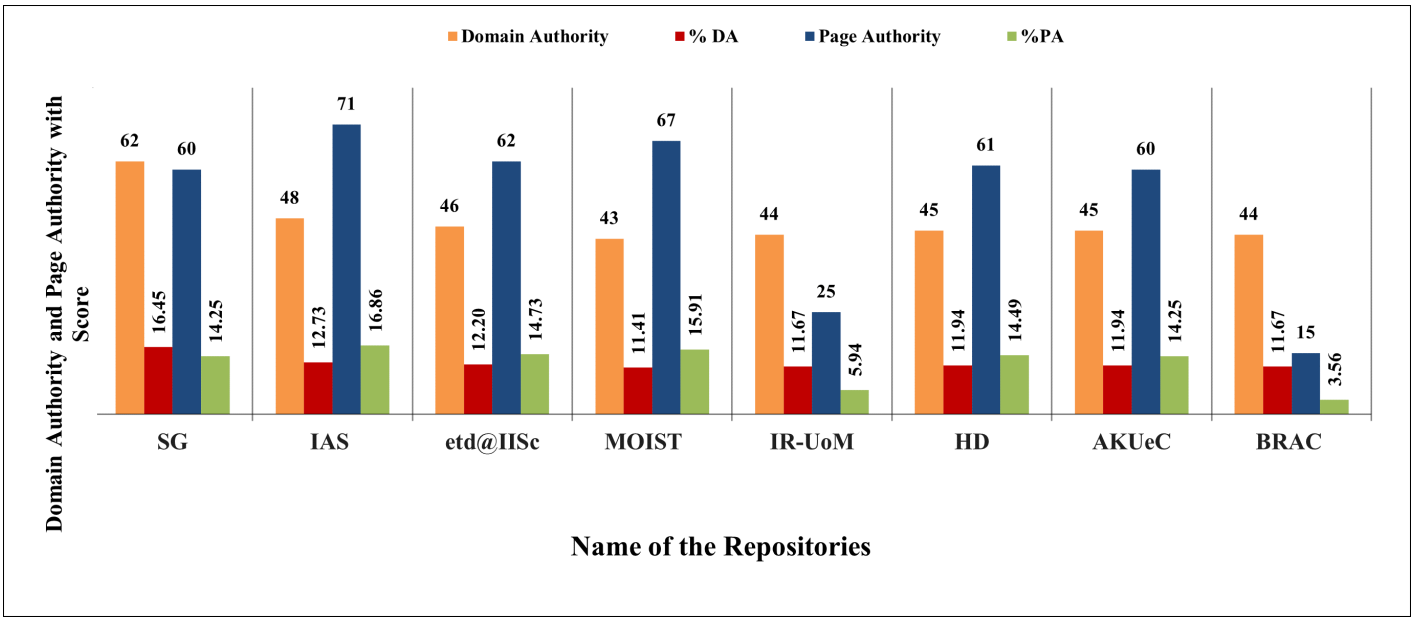
RESULTS AND FINDNGS

Figure 1 depicts the DA and PA measurements of the educational repository websites. SG recorded the highest DA (62), while the IAS achieved the highest PA (71). Conversely, the BRAC University Repository had the lowest PA (15) and, along with the IR-UoM (44), the lowest DA scores. Overall, the majority of the repositories-seven out of eight-have a DA score below 50, whereas only two out of eight have a PA score below 50.

Total Web pages, total internal links, total external links, and total links

As presented in Table 2, the aggregate number of webpages, internal links, external links, and total links vary significantly among the selected educational repositories. BRAC records the highest number of webpages, whereas MOIST demonstrates exceptionally high internal and total link counts despite having a very small number of webpages, suggesting possible anomalies such as automated link generation or structural inconsistencies. SG records the highest external link count, indicating strong web visibility and online presence.

In contrast, the BRAC University Institutional Repository shows extremely low internal and external link counts despite a large number of webpages, reflecting poor link connectivity and limited web visibility. The IR-UoM exhibits moderate link values, indicating relatively better connectivity than BRAC but still lower than leading repositories. These variations highlight disparities in repository structure, visibility, and web impact (Samanta & Majhi, 2022).



Figures 1: Domain Authority and Page Authority across selected Educational Repository Websites.

Top Individualized root domains of Educational Repository websites

Table 3 highlights the two leading referring root domains of the selected eight repositories. Prominent global platforms such as Google, Microsoft, WordPress, Apple, Wikipedia, and Europa frequently appear, reflecting strong connections with widely recognized platforms. Notably, repositories like SG, IAS, and etd@IISc show high domain authority scores, whereas repositories such as the BRAC exhibit relatively lower linking domains and domain authority values, indicating limited global visibility.

Web Impact Factor

Table 4 presents an analysis of the repositories based on SWIF, IWIF, and EWIF, revealing varying levels of web presence and visibility. The MOIST repository records an extremely high SWIF (155,524), driven largely by inflated internal linking, indicating extensive internal connectivity rather than balanced external visibility. SG is a strong performer, with a high SWIF (74.44) and a balanced split between internal (53) and external (21.44) links, reflecting both content depth and external recognition. etd@IISc likewise shows substantial impact (SWIF 64.36), supported by robust internal and external linking that suggests wide usage and visibility. The IAS displays moderate strength (SWIF 30.49), with nearly equal internal and external contributions, indicating a stable yet comparatively less influential presence. Among regional repositories, HD shows a relatively good standing (SWIF 41.76) with a balanced link structure, suggesting growing regional impact, while eCommons@AKU exhibits modest visibility (SWIF 19.48), driven more by internal than external links. At the lower end, the IR-UoM (SWIF 4.61) and the BRAC (SWIF near zero) demonstrate limited visibility and weaker web influence. Overall, MOIST, SG, and IAS stand out as the most impactful repositories, while several South Asian repositories have considerable scope to improve their web presence and global reach.

Overall, MOIST, SG, and IAS stand out as the most impactful repositories, while several South Asian repositories have considerable scope to improve their web presence and global reach. This indicates that repository performance is influenced not only by internal link structures but also by external connectivity, content volume, and institutional support, highlighting the importance of strategic web management practices in enhancing visibility and impact.

Web content and Functional features of the Selected Educational repositories

Table 5 presents the feature-wise evaluation of eight educational repositories against 19 quality parameters, highlighting both their strengths and existing gaps. The results show that foundational features such as Website accessibility, contact information, Search facilities, Authority details, about repository, and Navigation &

Table 2: Webpage counts and link-based indicators (internal, external, and overall).

Repository	Total number of Webpages	Total Internal links	Total external links	Total links
SG	300,000	1,59,00,000	64,33,100	2,23,33,100
IAS	42,900	6,81,200	6,27,100	13,08,300
etd@IISc	43,200	18,00,000	9,80,500	27,80,500
MOIST	75	1,08,00,000	8,64,300	1,16,64,300
IR-UoM	1,34,000	3,45,000	2,73,900	6,18,900
HD	28,900	7,99,900	4,07,000	12,06,900
AKUeC	65,200	12,70,500	4,99,600	17,70,100
BRAC	3,10,000	2,006	106	2,112

Table 3: Top Individualized root domains of the selected eight Educational Repository websites.

Repository	Root domain (1)	Root domain (2)	DA (1)	DA (2)	Linking domains (1)	Linking domains (2)
SG	docs.google.com	microsoft.com	97	97	7,391,292	1,006,328
IAS	www.google.com	microsoft.com	100	98	14,876,094	5,983,457
etd@IISc	wordpress.org	microsoft.com	99	98	13,582,767	5,983,457
MOIST	apple.com	en.wikipedia.org	99	97	7,325,187	7,391,198
IR-UoM	en.wikipedia.org	europa.eu	97	98	7,391,198	2,761,982
HD	en.wikipedia.org	europa.eu	97	97	7,391,198	2,761,982
AKUeC	apple.com	en.wikipedia.org	99	97	7,325,187	7,391,198
BRAC	ucl.ac.uk	ucd.ie	91	77	174,494	39,374

Table 4: Web Impact factor.

Repository	SWIF	IWIF	EWIF	SWIF Rank	IWIF Rank	EWIF Rank	Final Rank
MOIST	155524.0000	144000.0000	11524.0000	1	1	1	1
SG	74.4437	53.0000	21.4437	2	2	3	2
etd@IISc	64.3634	41.6667	22.6968	3	3	2	3
HD	41.7612	27.6782	14.0830	4	4	4	4
IAS	30.4965	15.8788	14.6177	5	5	5	5
AKUeC	19.4862	11.8236	7.6626	6	6	6	6
IR-UoM	4.6187	2.5746	2.0440	7	7	7	7
BRAC	0.0068	0.00647	0.0003	8	8	8	8

Table 5: Web content and Functional features of the Selected Educational repositories.

Criteria	SG	IAS	etd@IISc	MOIST	IR-UoM	HD	AKUeC	BRAC	Total Score
Website	✓	✓	✓	✓	✓	✓	✓	✓	8 (100%)
Contact Information	✓	✓	✓	✓	✓	✓	✓	✓	8 (100%)
Search Features	✓	✓	✓	✓	✓	✓	✓	✓	8 (100%)
Authority	✓	✓	✓	✓	✓	✓	✓	✓	8 (100%)
About Repository	✓	✓	✓	✓	✓	✓	✓	✓	8 (100%)
Navigation & Links	✓	✓	✓	✓	✓	✓	✓	✓	8 (100%)
Customer Service	✗	✗	✗	✗	✗	✓	✗	✗	1 (12.5%)
Copyright	✓	✓	✓	✓	✓	✗	✓	✓	7 (87.5%)
Submission Guidelines	✓	✓	✓	✗	✗	✗	✗	✓	4 (50%)
Sitemap	✗	✗	✗	✓	✗	✓	✓	✗	3 (37.5%)
FAQ	✓	✗	✗	✗	✗	✗	✓	✗	2 (25%)
Web 2.0	✓	✓	✓	✓	✗	✓	✓	✗	6 (75%)
Statistics	✓	✗	✗	✗	✗	✗	✓	✗	2 (25%)
Online Forum for Discussion	✗	✗	✗	✗	✗	✓	✗	✓	2 (25%)
Grants and Fellowship Information	✗	✓	✗	✗	✓	✗	✗	✗	2 (25%)
Awards	✗	✗	✗	✗	✗	✗	✗	✗	0 (0%)
Publications	✓	✓	✓	✓	✓	✓	✓	✓	8 (100%)
Metadata Policy	✓	✓	✗	✓	✗	✗	✗	✗	3 (37.5%)
Preservation Policy	✓	✓	✗	✗	✗	✗	✓	✓	4 (50%)
Score (out of 19)	14	13	10	11	9	11	13	11	

Note: The symbol "✓" represents the availability of a feature, while " ✗ " indicates that the feature is not available.

Links are consistently available across all repositories, reflecting a regional consensus on the importance of basic usability and visibility. Similarly, Publications are in all repositories while Copyright statements are present in all repositories except HD, suggesting a general concern for intellectual property. By contrast, advanced functions demonstrate considerable variation. For example, only four repositories provide Submission Guidelines and Preservation Policies, and just three explicitly state a Metadata Policy, underscoring uneven attention to sustainability and interoperability. Features aimed at user engagement are even

less common: Customer Service is offered solely by HD, FAQs are included in two repositories (IAS and AKUec), and Online Forums appear only in HD and BRAC. A few unique practices also emerge, such as Grants and Fellowship information in IAS and IR-UoM, although these remain isolated rather than widespread. While six repositories have incorporated Web 2.0 tools to extend digital outreach, only SG and AKUeC provide Statistics on usage and performance, limiting transparency and impact assessment. Furthermore, none of the repositories provide information related to Awards, indicating a complete absence of recognition- or achievement-based showcase features across the selected repositories.

Overall, the findings indicate that South Asian repositories are strong in ensuring front-end accessibility, but still weak in embedding back-end policies and user-oriented services, which are essential for long-term sustainability, interoperability, user engagement and global competitiveness.

DISCUSSION

This study examines eight educational repository websites to assess their overall web presence and functional characteristics. Findings indicate that these repositories predominantly use top level domain. '.ac', which is widely adopted by academic institutions to enhance credibility and visibility. Regarding link structure, half of the repositories contain a greater number of internal links, reflecting stronger intra-site connectivity, while the remaining half exhibited weaker external linkages to other sites. Similar observations are reported in the earlier studies also (Samanta & Majhi, 2022), where academic repositories tend to maintain more internal than external connections. Notably, only one repository achieved both a Domain Authority (DA) and Page Authority (PA) score above 50. The finding aligns with prior research on Indian Open University websites (Kaur & Sharma, 2020), which shows similarly limited DA and PA strength, with only one or two repositories surpassing the threshold of 50. The link analysis also reveals that google.com appears among the top individualized domains in one repository, an observation consistent with previous evaluations of Mizoram University's website (Verma & Brahma, 2017b). In terms of Web Impact Factors (WIF), no fixed maximum or minimum values are recorded, though the BRAC repository notably registered an Internal WIF (IWIF) score of zero. Comparable results have been documented in studies of national (Verma & Brahma, 2017a) and public library websites (Brahma & Verma, 2018b).

Feature-based analysis provides additional insights into the structure and usability of these repositories. Core features such as Search features, accessibility, authority information, navigation tools, and publication availability were found across almost all repositories, highlighting their importance in supporting visibility and academic utility. However, more advanced or user-oriented features are inconsistent. For example, FAQ sections, metadata policies, preservation policies, and submission guidelines are available in only a limited number of repositories, reducing transparency and reliability for long-term scholarly use. User support features such as customer service links, awards, and grants or fellowship information are absent from nearly all repositories, while interactive elements like online discussion forums were represented by only few repositories. Similarly, site maps a critical navigational aid are largely missing, and the absence of a visible 'last updated' date on repository homepages is another recurring limitation, both of which have been noted in earlier studies (Rahman & Batcha, 2020).

The findings have important implications for repository managers, academic institutions, and policymakers. Repository managers should focus on improving link-building strategies, search engine optimization, and content organization to enhance both internal and external visibility. Academic institutions need to strengthen digital infrastructure, ensure regular content updates, and promote wider dissemination of scholarly output. Policymakers should support these efforts by developing clear repository policies, providing adequate funding, and encouraging open access initiatives at regional and national levels.

Overall, the combined webometric and feature-based evaluation highlights that while South Asian repositories ensure basic visibility and access to scholarly publications, they lack advanced functional and policy frameworks that could enhance user engagement, improve navigability, and strengthen long-term credibility. Addressing gaps such as metadata and preservation policies, user support mechanisms, and interactive tools would not only improve repository performance but also align them with global best practices in open access digital platforms.

CONCLUSION

The evaluation of eight repository websites in the South Asian region highlights both their strengths and areas that require improvement. While they employ diverse domain extensions such as .ac and .org, external link connectivity remains generally weak, with several repositories relying heavily on internal linking structures. These gaps suggest a pressing need for targeted enhancements to improve visibility, strengthen connectivity, and increase user engagement. Incorporating missing features and expanding external link networks could significantly enhance both accessibility and overall impact.

The ongoing shift from traditional to digital platforms has underscored the importance of well-functioning and optimally designed repository websites. In the current digital environment, effective online communication is vital, and repositories can also benefit from interactive features such as messaging services, discussion platforms, and chat facilities to foster strong user engagements, online discussion forums, and chat rooms to foster stronger user engagement. In addition, the integration of chatbots and artificial intelligence–based tools can further

enhance user support by providing real-time assistance and personalized information retrieval. Equally important is the use of advanced web technologies, such as Web 3.0 technologies, to better understand user needs and behaviour. Incorporating such dynamic and user-centric features, along with strategies to enhance external link connectivity, would significantly improve visibility, engagement, and overall repository impact.

While MOZ facilitated systematic webometric analysis, dependence on one analytical platform may limit the comprehensiveness of the study. Therefore, future research should consider additional backlink analysis platforms, such as Ahrefs and Majestic, to compare results and improve the reliability of findings. Beyond visibility and connectivity, this feature-based evaluation further underscores notable disparities across repositories. While core elements such as Search features, contact details, and authority pages are consistently present, advanced user-support features-including FAQs, online forums, and customer service-are largely absent. Critical policies such as metadata and preservation are implemented unevenly, raising concerns about long-term sustainability. The observed differences among the repositories may also be influenced by variations in institutional funding, ICT infrastructure, technical expertise, and support for open access initiatives across the South Asian region. Repositories backed by stronger institutional and technological support generally demonstrate better web visibility, connectivity, and functional features, whereas repositories with limited resources tend to rely on basic repository services and show weaker online presence. The findings highlight the importance of policy support, sustainable funding, and technological development in in improving sustained performance and global visibility of South Asian repositories. Repositories like SG and the IAS perform relatively well by integrating a broader set of features, whereas platforms such as the University of Moratuwa remain limited to basic functions. Addressing these gaps, alongside strengthening external link networks, is essential for ensuring that South Asian repositories evolve into comprehensive, sustainable, and globally competitive platforms for scholarly communication.

ABBREVIATIONS

AKUeC: eCommons@AKU; **DA:** Domain Authority; **EL:** External Links; **etd@IISc:** Electronic Thesis and Dissertation of Indian Institute of Science; **EWIF:** External Web Impact Factor; **FAQ:** Frequently Asked Questions; **HD:** HimalDoc; **IAS:** Indian Academy of Sciences; **ICT:** Information and Communication Technology; **IL:** Internal Links; **IR-UoM:** Institutional Repository, University of Moratuwa; **IWIF:** Internal Web Impact Factor; **MOIST:** Multidisciplinary Oceanic Information System; **NIT:** National Institute of Technology; **OER:** Open Educational Resources; **OpenDOAR:** Directory of Open Access Repositories; **PA:** Page Authority; **RD:** Referring Domains; **SAARC:** South Asian Association for Regional Cooperation; **SEO:** Search Engine Optimization; **SG:** Shodhganga; **SWIF:** Simple Web Impact Factor; **TL:** Total Links; **TLD:** Top-Level Domain; **URL:** Uniform Resource Locator; **WIF:** Web Impact Factor; **Web 2.0:** Web 2.0 Technologies.

CONFLICT OF INTEREST

The authors declare that there is no conflict of interest.

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