Evaluating User Awareness and Engagement with Institutional Repository in Rural Higher Education: A Case Study of Bikali College, Assam

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Abstract

Purpose: This study investigates the level of awareness, usage patterns, and perceived usefulness of the Institutional Repository (IR) at Bikali College, Dhupdhara, Assam, India. The primary objective was to evaluate how students interact with digital academic resources and to determine the impact of demographic factors on repository engagement.

Methodology: A descriptive survey research design was employed, collecting primary data from 236 students across Higher Secondary, Undergraduate, and Postgraduate programmes. Data were analyzed using descriptive statistics (M, SD) and non-parametric inferential tests, including Spearman's rank-order correlation, Kruskal-Wallis H, and Mann-Whitney U tests, to examine the relationships between awareness, gender, academic designation, and usage frequency.

Findings: The study found a high level of awareness and positive perception of the institutional repository among students, with regular use for academic purposes. Students recognized its academic value but showed lower levels of active content contribution. Usage was not significantly influenced by gender or academic designation, while awareness was positively associated with frequency of use. Key challenges included inadequate training and search limitations, leading students to recommend enhanced resources, training programs, and improved system accessibility.

Originality/Value: This study provides original empirical evidence on institutional repository (IR) engagement at the college level in North-East India. It addresses a notable gap in the existing scholarly literature.

Keywords: Institutional Repository (IR), Awareness, Usage Pattern, Digital Literacy, Academic Library, Bikali College, Dhupdhara, North-east India

1. Introduction

The transformation of scholarly communication in the digital era has led to the emergence of institutional repositories (IRs) as a critical

infrastructure within higher education institutions. Institutional repositories facilitate the collection, preservation, and dissemination of an institution's intellectual output in digital form, thereby supporting open access, research visibility, and long-term preservation (Lynch, 2003). As higher education institutions increasingly emphasize research productivity, transparency, and global visibility, IRs have become integral to academic library services.

Crow (2002) defines an institutional repository as a digital archive that captures and preserves the intellectual capital of an institution. Beyond preservation, IRs enhance access to scholarly materials, reduce barriers to information access, and support teaching and learning activities. In developing countries such as India, IRs also play a vital role in democratizing access to knowledge and addressing the serials crisis faced by academic libraries.

In India, initiatives such as the National Digital Library of India (NDLI), Shodhganga, and institutional open access mandates have strengthened the relevance of institutional repositories. Academic libraries serve as the primary agents responsible for developing IR infrastructure, content recruitment, metadata management, and user training. Furthermore, effective management of Institutional Repositories requires strategic visibility mechanisms such as Search Engine Optimization (SEO), which enhances discoverability, indexing, and global accessibility of digital content, thereby strengthening the outreach and impact of library-managed repositories (Barman, 2018).However, the success of an IR largely depends on the level of awareness, acceptance, and actual use by its intended users (Kim, 2011).

Bikali College, Dhupdhara, Assam, established on 14 April 1982, is a premier higher education institution affiliated with Gauhati University. Located in the Goalpara district, the college was founded through the collective efforts of the Bikali Mouza community to provide quality and inclusive education. With undergraduate and postgraduate programmes across Arts, Commerce, and Science streams, and a well-developed campus equipped with modern academic facilities, the institution plays a significant role in regional educational development.

Bikali College, Dhupdhara, Assam, has established an Institutional Repository (http://bikalicollege.digitallibrary.co.in/) to preserve and disseminate a wide range of academic and institutional digital resources. The Institutional Repository was initiated in January 2022 under the leadership of Swarnalata Devi, former Librarian of Bikali College. The repository hosts diverse digital collections, including the college prospectus, faculty research publications, photographs of college events, newspaper clippings related to Bikali College, *Bikalian* magazine, departmental magazines, important question-and-answer materials, notes, and audio-video learning resources for students. In addition, the repository provides access to digital resources created since 2018, making it a valuable archival and learning platform. Despite the availability and richness of the IR collections, there has been no systematic empirical assessment of its awareness and use among students. Understanding user behaviour is therefore essential for optimizing IR services and aligning them with institutional academic objectives.

For contextual understanding, preliminary web analytics data of the Institutional Repository (IR) of Bikali College, Dhupdhara were obtained

from the data analytical platform Histats.com (https://www.histats.com/viewstats/?sid=4619197&ccid=10). The data were collected for the period from January 2022 to December 2025. These statistics are presented to provide readers with an overview of the repository's growth and online visibility; however, they are supplementary in nature and are not directly linked to the primary objectives or empirical analysis of the present study.

The year-wise page views of the Institutional Repository of Bikali College, Dhupdhara show a steady rise from 42,698 in 2022 to 102,388 in 2025; indicating increasing visibility and reliance on the repository for academic access (see Figure 1). Figure 1 shows a substantial increase in total visitors to the Institutional Repository, rising from 6,809 in 2022 to 26,314 in 2025. Visitor numbers increased sharply between 2022 and 2024, followed by a marginal decline in 2025. This trend reflects expanding outreach and visibility of the repository while also highlighting the need to examine factors influencing sustained user engagement beyond initial access. The bar chart (Figure 1) displays the new visitors' ratio for the Bikali College, Dhupdhara IR website from 2022 to 2025. The ratio surged significantly from 65.5% in 2022 to a peak of 78.8% in 2023.This high engagement level remained consistent throughout 2024. However, a slight decrease to 76.8% is observed in 2025, suggesting a minor dip in new user acquisition.

Therefore, this study aims to assess the level of awareness, patterns of use, and perceptions of students regarding the Institutional Repository at Bikali College, Dhupdhara. By examining user engagement with repository services, the study seeks to generate evidence that can inform institutional and library policy decisions related to digital knowledge management. The findings will support the formulation of strategies for repository development, content expansion, user training, and the integration of digital resources into academic processes. Furthermore, the study aligns with NAAC Criterion 4 (Infrastructure and Learning Resources) by evaluating the library's role as a digital learning resource, and NAAC Criterion 6 (Governance, Leadership, and Management) by supporting data-driven planning and quality assurance initiatives (Barman, 2023). The study aligns with the objectives of the National Education Policy 2020 by evaluating the Institutional Repository as a core component of institutional digital infrastructure that supports organized preservation and technology-enabled access to academic resources. It further advances NEP 2020's emphasis on Open Educational Resources (OER) by promoting open access dissemination of research and learning materials, thereby ensuring equitable and enhanced digital learning opportunities. Additionally, the study contributes to NIRF indicators, particularly Teaching, Learning and Resources (TLR) and Research and Professional Practice (RP), by strengthening digital learning support and enhancing the visibility and accessibility of institutional research outputs.

Figure 1: Bikali College, Dhupdhara IR Stats

Repository Analytics Dashboard (2022–2025)
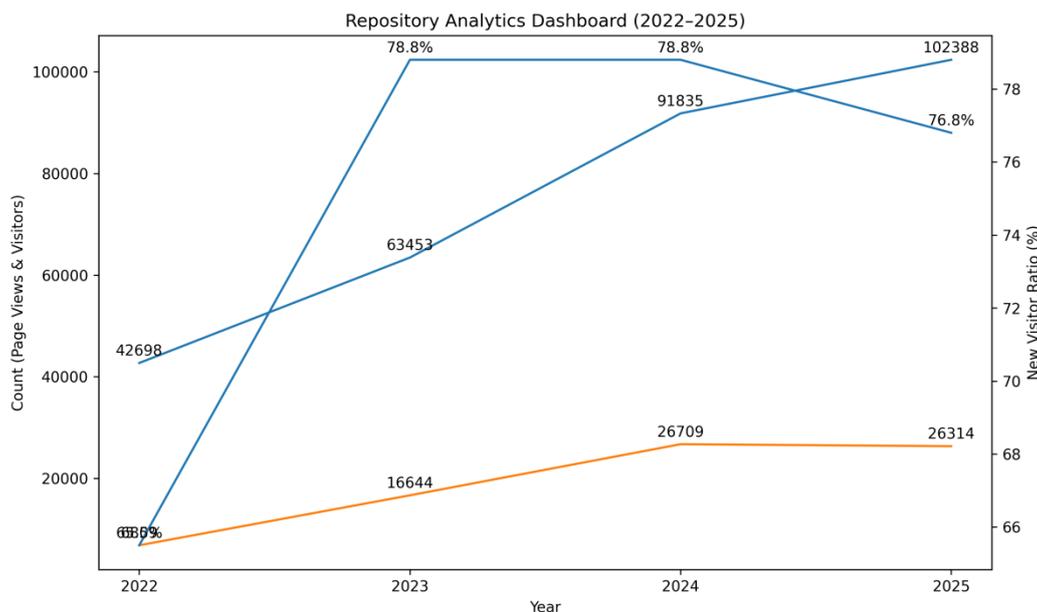
2. Review of Literature

The global discourse on Institutional Repositories (IR) consistently highlights a profound "awareness-participation gap." Yang and Li (2015) identified this phenomenon at Texas A&M University, noting that while faculty hold positive perceptions of Open Access, active engagement is often hindered by ignorance of deposit processes, copyright apprehensions, and quality concerns. This suggests that the mere provision of institutional resources is insufficient; success necessitates continuous communication and targeted pedagogical interventions to transition users from passive awareness to active scholarly engagement.

Building on the technological transformation discussed by Gaikwad and Bilawar (2023), who emphasize the growing role of emerging digital technologies in reshaping academic libraries, the need for mobile-responsive Institutional Repositories becomes particularly significant in rural contexts. For rural institutions, a mobile-optimized IR is not merely a technological upgrade but a critical mechanism for digital inclusivity, as smartphones often constitute the primary mode of internet access. Therefore, ensuring mobile responsiveness aligns with the broader vision of technology-driven library services and supports equitable scholarly participation in resource-constrained environments.

In the Indian context, research mirrors these international trends while highlighting region-specific challenges. Halder and Chandra (2012) emphasize that the utility of an IR at Jadavpur University is contingent upon the breadth of user awareness rather than just technical sophistication. They argue that institutions must bridge the gap between traditional and digital paradigms by focusing on user demands and repository visibility. Similarly, Das and Sarmah (2018) observed that even with functional infrastructure at Assam University, faculty exhibited hesitation and a "lack of interest," reinforcing the need for active institutional promotion over passive technical management.

The sustainability of IRs in North-East India is further complicated by severe infrastructural and operational barriers. Mahanta (2021), in a survey of 126 college libraries in Assam, identified that the absence of technical support and inadequate high-speed internet are the primary determinants of an institution's inability to sustain a digital repository. These technical and educational gaps are echoed by Saikia (2021) at Tezpur University, where high awareness did not equate to optimal use due to limited technical skills among students. Consequently, for an IR to serve as a "single window" for research productivity, institutions must prioritize both high-speed connectivity and specialized orientation programs.

Effective management and professional competence also emerge as critical factors for IR success. Buragohain and Kumar (2021) argue that the future improvement of IRs in Assam depends on structured management procedures and specialized professional training for library staff. This underscores that operational competence is as vital as the digital assets themselves.

The present study addresses a critical gap in this literature by providing empirical evidence from a rural, college-level context in North-East India. While existing research predominantly focuses on large universities, there is a scarcity of data regarding localized undergraduate and higher secondary institutions. By identifying a significant correlation between awareness and usage frequency, this research provides a localized perspective on bridging the participation gap within resource-constrained academic environments.

3. Objectives of the Study

i) To examine students' awareness and perceptions of the Institutional Repository, including its purpose, benefits, and contribution process, and to explore the relationship between awareness and actual usage.

ii) To analyze students' access to and usage patterns of the Institutional Repository, including the types of academic resources used, and to assess whether gender and academic designation influence usage frequency.

iii) To identify the major challenges faced by students in using the Institutional Repository and to document their recommendations for improving its effectiveness and academic value.

4. Methodology

A descriptive survey research design was adopted to investigate the awareness and usage of the Institutional Repository (IR) at Bikali College, Dhupdhara. This design was selected to provide a systematic and objective description of the status of student engagement with the digital repository.

To guide the inferential phase of the study, three null hypotheses were formulated.

H_{01}: There is no significant relationship between students' awareness of the Institutional Repository and their frequency of usage.

H_{02}: There is no significant difference in the frequency of IR usage among Higher Secondary (HS), Under-Graduate (UG), and Post-Graduate (PG) students.

H_{03}: The frequency of IR usage does not differ significantly between male and female students.

The target population for this study comprised the entire student body of Bikali College, Dhupdhara. Using a convenience sampling technique, a total of 236 valid responses were collected from students across the Higher Secondary, Undergraduate, and Postgraduate levels (See Table 1). Data collection was carried out over an eight-month period, spanning from April 1, 2025, to November 30, 2025. Data was collected using Google Forms which was distributed among the participants.

The primary research instrument was a structured questionnaire designed to capture both demographic information and student perceptions. The tool utilized five-point Likert-scale items to measure specific dimensions, including repository awareness, accessibility, usage patterns, technical challenges, and recommendations for future improvement. The reliability of the questionnaire was tested using Cronbach's Alpha to assess the internal consistency of the Likert-scale items, yielding a high reliability coefficient of 0.896.

For the analysis of the gathered data, both descriptive and inferential statistical methods were employed. Descriptive statistics, such as frequencies, percentages, means (M), and standard deviations (SD), were used to summarize the demographic profile and general levels of awareness. To test the formulated hypotheses, several non-parametric inferential tests were conducted at a .05 level of significance, including a Spearman's rank-order correlation, a Kruskal-Wallis H test, and a Mann-Whitney U test. All data processing and statistical computations were performed using Microsoft Excel and SPSS to ensure mathematical precision.

Ethical considerations were strictly followed; participants were informed about the study's purpose, and informed consent was obtained, ensuring anonymity and confidentiality throughout the research process.

5. Data Analysis and Results

a) Demographic Profile of Respondents: Table 1 shows that out of 236 respondents, 192 (81.36%) were female and 44 (18.64%) were male. Most respondents (84.75%) belonged to the 15–20 years age group. In terms of academic designation, 120 (50.85%) were undergraduate students, 100 (42.37%) were higher secondary students, and 16 (6.78%) were postgraduate students.

Table 1: Demographic Profile of Respondents

Variable	Category	Frequency (n)	Percentage (%)
Gender			
	Female	192	81.36
	Male	44	18.64
Total		**236**	**100.00**
Age Group			
	15–20	200	84.75
	21–30	36	15.25
Total		**236**	**100.00**
Designation			
	UG Student	120	50.85
	HS Student	100	42.37
	PG Student	16	6.78
Total		**236**	**100**
Note: UG – Undergraduate, HS- Higher Secondary, PG- Post Graduate			

b) Awareness of the Institutional Repository: Table 2 indicates a high level of student awareness regarding the institutional repository (IR). The highest mean score for overall IR awareness (M = 4.31, SD = 0.50) reflects strong familiarity with the repository among respondents. Students also demonstrated a clear understanding of the purpose and benefits of the IR (M = 4.27, SD = 0.52) and reported sufficient access to information about its use (M = 4.24, SD = 0.56). Perceptions of the IR as essential for academic activities were similarly positive (M = 4.20, SD = 0.58). Although training attendance received a slightly lower mean (M = 4.10, SD = 0.73), the overall mean score (M = 4.22, SD = 0.57) confirms a strong awareness and positive orientation toward the IR.

Table 2: Institutional Repository - Awareness

Category and Item	Mean (M)	Std. Dev (SD)
IR Awareness	4.31	0.50
Purpose/Benefit Understanding	4.27	0.52
Information Sufficiency	4.24	0.56
Essentiality of IR	4.20	0.58
Training Attendance	4.10	0.73
Overall	4.22	0.57

c) Frequency and Purpose of Use: Table 3 demonstrates a high level of accessibility and usage of the institutional repository (IR) among students. The highest mean score for IR usage (M = 4.24, SD = 0.62) indicates frequent engagement with the repository, supported by strong perceptions of ease of access (M = 4.22, SD = 0.52). Resource relevance (M = 4.20, SD = 0.55) further suggests that students find the content academically useful. Preference for the IR (M = 4.14, SD = 0.62) reflects positive attitudes toward its use over alternative sources. Although usage frequency (M = 4.03, SD = 0.64) is slightly lower, it remains high, confirming consistent and sustained IR adoption.

Table 3: Accessibility and Usage of IR

Category and Item	Mean (M)	Std. Dev (SD)
IR Usage	4.24	0.62
Ease of Access	4.22	0.52
Usage Frequency	4.03	0.64
Resource Relevance	4.20	0.55
Preference for IR	4.14	0.62

d) Perceived Usefulness of the Institutional Repository: Based on Table No. 4, perceptions of academic visibility achieved the highest mean (M = 4.29, SD = 0.49), whereas actual submission of work recorded the least (M = 3.75, SD = 0.86). This indicates a significant gap between valuing the IR's benefits and active participation. However, high consensus (SD = 0.47) regarding the clarity of the submission process suggests that motivation, rather than complexity, limits student contributions.

Table 4: Perceived Usefulness of IR

Category and Item	Mean (M)	Std. Dev (SD)
Contribution Awareness	4.08	0.53
Submission History	3.75	0.86
Process Clarity	4.19	0.47
Faculty Encouragement	4.10	0.51
Visibility Enhancement	4.29	0.49

e) Challenges in Using the Institutional Repository: Table 5 highlights several challenges faced by students in using the institutional repository (IR), with varying levels of concern. The highest mean score for training need (M = 4.00, SD = 0.76) indicates that inadequate user training is the most critical barrier, underscoring gaps in information literacy and system orientation. Difficulties related to search functionality (M = 3.97, SD = 0.74) further suggest usability limitations that may hinder effective information retrieval. Security concerns (M = 3.81, SD = 0.87) reflect moderate apprehension regarding data protection and content reliability. Resource scarcity (M = 3.58, SD = 1.00) and technical challenges (M = 3.34, SD = 1.07), though less severe, still point to infrastructural and system-level constraints affecting consistent IR use.

Table 5: Challenges in Using the IR

Category and Item	Mean (M)	Std. Dev (SD)
Technical Challenges	3.34	1.07
Resource Scarcity	3.58	1.00
Search Improvement	3.97	0.74
Security Concerns	3.81	0.87
Training Need	4.00	0.76

f) Recommendations for Improvement: The analysis of Table 6 indicates that students critically recommend strengthening the institutional repository (IR) through both infrastructural and pedagogical measures. The highest mean score for learning benefits (M = 4.24) suggests that students perceive the IR as an important academic support tool rather than merely a storage platform. Strong support for workshops (M = 4.14) and additional resources (M = 4.12) highlights gaps in awareness, skills, and institutional investment. Although mobile-friendly access received comparatively lower agreement (M = 3.83), it signals a growing expectation for flexible access. The recommendation to include student work (M = 4.08) reflects students' desire for visibility, academic recognition, and participatory knowledge sharing within the IR.

Table 6: Recommendations for Improvement of IR

Category and Item	Mean (M)	Std. Dev (SD)
Need for Resources	4.12	0.61
Workshop Recommendation	4.14	0.57
Mobile-Friendly Need	3.83	0.76
Student Work Inclusion	4.08	0.65
Benefit for Learning	4.24	0.56

g) Hypothesis 1 Testing: Relationship Between Awareness and Usage Frequency: Table 7 shows a positive and statistically significant correlation between students' awareness of the Institutional Repository and their usage frequency (Spearman's ρ = .403, p < .001, N = 236). In LIS research metrics, a coefficient of .403 may be interpreted as a strong–moderate association, indicating a meaningful relationship between awareness and usage. Since the p-value is less than .001, the null hypothesis (H01), which states that there is no significant relationship between awareness and usage frequency, is rejected.

However, the coefficient of determination ($\rho^2 \approx .16$) suggests that awareness explains approximately 16% of the variance in usage behavior. This indicates that while awareness is a significant contributing factor, it is not the sole determinant of IR usage. Therefore, the findings support the conclusion that awareness is necessary but insufficient on its own, and that other factors—such as perceived usefulness, ease of access, digital skills, and academic requirements—may also influence students' engagement with the repository.

Table 7: Spearman Correlation Between Awareness and Usage Frequency

Variables	N	Spearman's ρ (*rs*)	*p*-value
Awareness vs. Usage Frequency	236	.403**	< .001

h) Hypothesis 2 Testing: Influence of Academic Designation on Usage Frequency: Hypothesis 2 examined whether students' academic designation influences their frequency of Institutional Repository (IR) usage. A Kruskal–Wallis H test revealed no statistically significant difference in usage frequency among HS, UG, and PG students, H(2) = 5.03, p = .081. Accordingly, the null hypothesis is not rejected at the .05 significance level. Although HS students reported a marginally higher mean usage frequency (M = 2.20, SD = 0.98) than PG (M = 2.00, SD = 1.03) and UG students (M = 1.90, SD = 0.98), these differences were not statistically meaningful. The findings suggest that IR usage at Bikali College, Dhupdhara is relatively consistent across academic levels, indicating that factors other than academic designation may play a more influential role in determining usage behavior.

Table 8: Mean Ranks of Usage Frequency by Academic Designation

Designation	N	Mean Frequency Score	SD
HS Student	100	2.20	0.98
PG Student	16	2.00	1.03
UG Student	120	1.90	0.98

i) Hypothesis 3 Testing: Gender and Frequency of Usage: Hypothesis 3 examined whether gender influences the frequency of Institutional Repository (IR) usage among students. A Mann–Whitney U test indicated no statistically significant difference in usage frequency between female and male students, U = 4800.0, p = .106. Therefore, the null hypothesis is not rejected at the .05 significance level. Although female students reported a slightly higher mean usage score (M = 2.08, SD = 1.00) compared to male students (M = 1.82, SD = 0.95), the difference was not statistically

meaningful. These findings suggest that gender does not significantly shape IR usage behavior at Bikali College, Dhupdhara, reflecting relatively equitable access, awareness, and engagement with the repository across genders.

A limitation of the study is the gender imbalance in the sample, with 81.36% female and 18.64% male respondents. This disproportion may have reduced the statistical power of the Mann–Whitney U test to detect potential differences in IR usage across genders. Therefore, future studies should adopt stratified or proportionate sampling techniques to ensure more balanced gender representation and to generate more generalizable findings.

Table 9: Descriptive Statistics for Usage Frequency by Gender

Gender	N	Mean Frequency Score	SD
Female	192	2.08	1.00
Male	44	1.82	0.95

6. Discussion

The findings of the present study both corroborate and critically extend the existing body of literature on Institutional Repositories (IRs), particularly within the socio-academic context of North-East India. International studies, such as Yang and Li (2015), emphasize a persistent awareness–participation gap, where positive perceptions of IRs do not necessarily result in active engagement due to procedural complexities, copyright concerns, and limited user guidance. The present study partially supports this argument; while students at Bikali College, Dhupdhara demonstrated high levels of awareness and positive perceptions, challenges related to training needs and system usability indicate that awareness alone is insufficient to ensure optimal usage.

In the Indian context, Halder and Chandra (2012) argued that IR effectiveness depends more on user awareness and visibility than on technical sophistication. The strong awareness scores observed in this study align with this claim, as awareness was found to be moderately and significantly correlated with usage frequency. This finding extends earlier research by empirically demonstrating that, in a college-level setting, awareness can function as a key predictor of use, particularly where institutional scale is smaller and user communities are more homogeneous. However, the results also nuance Das and Sarmah's (2018) observation of user disinterest, as students in the present study exhibited favorable attitudes and consistent usage across gender and academic designation, suggesting that student engagement may differ markedly from faculty behavior in university environments.

Although the college is situated in a rural context commonly associated with digital divide challenges, the high mean scores for awareness (M= 4.31) and usage (M= 4.24) should be interpreted cautiously. The data were collected using convenience sampling through Google Forms, which likely reached students who are digitally active and have regular internet access. This may have introduced response bias, potentially over representing technologically engaged users while under representing students with limited digital connectivity. Consequently, the findings may reflect the perceptions of digitally connected students rather than the entire rural student population.

Moreover, despite the high reported awareness and usage levels in the survey, web analytics data show 26,314 visitors in 2025, suggesting that repository access may not yet be uniformly habitual across the broader student body. This contrast indicates that while awareness is present among active respondents, sustained and widespread engagement with the IR requires further institutional strategies beyond initial access and familiarity.

Despite the high mean score for process clarity reported in Table 4 (M = 4.19), the equally high training need identified in Table 5 (M = 4.00) indicates a clear distinction between procedural understanding and functional competence. While students may perceive the repository interface and access procedures as straightforward, they may still lack the information literacy skills necessary for effective searching, advanced retrieval techniques, critical evaluation of resources, and content contribution. This suggests that usability and clarity alone do not automatically translate into meaningful or skillful academic engagement with the Institutional Repository.

The infrastructural and operational challenges identified in this study resonate strongly with Mahanta's (2021) and Saikia's (2021) findings, which highlight technical limitations and skill deficits as major barriers to effective IR utilization in North-East India. Despite relatively high access and usage, students' strong recommendations for training, improved search functionality, and enhanced resources underscore persistent systemic constraints. Furthermore, Buragohain and Kumar's (2021) emphasis on professional competence and structured management is reinforced by students expressed need for workshops and guided support.

Overall, this study contributes a localized, college-level perspective that complements existing university-centric research. It demonstrates that while awareness is a necessary condition for IR engagement, sustained and meaningful use depends on continuous training, infrastructural support, and proactive institutional strategies to bridge the awareness–participation gap in resource-constrained academic settings.

7. Conclusion

The present study offers a critical assessment of the digital scholarship landscape at Bikali College, Dhupdhara, demonstrating that while foundational awareness of the Institutional Repository (IR) is high, the transition to substantive engagement remains incomplete. Empirical evidence suggests that awareness acts as a necessary but insufficient precursor to usage, with engagement patterns primarily dictated by immediate academic requirements. Furthermore, findings reveal that demographic variable—specifically gender and academic designation—do not significantly influence usage frequency, indicating a uniform user experience. However, the "awareness-participation gap" persists, largely exacerbated by structural constraints such as inadequate internet bandwidth in rural settings. The findings provide valuable insights for academic librarians, administrators, and policymakers to improve institutional repository services, particularly in college libraries in developing regions.

A key limitation of this study is the use of convenience sampling via an online Google Form, which may have resulted in response bias by capturing predominantly digitally active students. Consequently, the

findings may not fully represent students facing digital access constraints in the rural context. Future research should adopt stratified and mixed-method approaches, including offline surveys, to ensure broader representation.

Future research should employ qualitative methodologies, such as semi-structured interviews, to investigate the specific "digital friction" experienced by rural students. Longitudinal studies are also required to track the evolution of usage patterns following the implementation of specialized literacy workshops. Finally, a comparative analysis across multiple colleges in North-East India would determine if these findings reflected a broader regional trend in resource-constrained environments.

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