

Use and Access of E-Resources in Academic Libraries: A Study of Law Colleges in Kumaun Region

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Abstract

The study checks the awareness, usage habits, and how good users think electronic resources are as per academic users in higher education colleges regarding the Kumaun region. We are seeing data collected from 108 people using mixed methods, and these people only came from four colleges including students, teachers, and library workers. Basically, we used a questionnaire with both fixed and open questions to collect data on awareness, how often people use it, and the same satisfaction levels. As per the study method, SPSS software was used for number analysis regarding finding factors that decide if online resources are enough or not. The analysis included basic statistics, factor grouping, cluster making, and regression testing. The qualitative responses were further analysed using thematic coding itself. Basically, users know about it quite well, but the same people don't actually use it much in real life. EFA surely found three main factors that affect awareness: accessibility, content relevance, and user support. Moreover, these factors were identified as the most important ones influencing how people become aware of something. The regression analysis showed that awareness and usage frequency further affect how adequate users find the e-resources itself. The results surely show that regular training for users, better digital facilities, and focused government policies is needed to improve e-resource use in Kumaun region's colleges and universities. Moreover, these steps will help students and teachers make better use of online educational materials.

Keywords: E-resources, Kumaun Region, Factor Analysis.

1. Introduction

The rapid growth of information and communication technology (ICT) has changed the way people in the academic world receive, store, and share knowledge. E-resources including e-journals, e-books, online databases, and institutional archives are now very important for teaching, learning, and research in higher education. They help you learn together, provide you instant access to the latest knowledge, and make you more productive in school. As a result, using e-resources properly has become an important way to judge how well an institution and its pupils are doing in school. In developing countries like India, where colleges and universities want to use ICT in their classrooms, not all schools and locations know about and use e-resources in the same way. Colleges and universities in developing countries like India

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are seeking to incorporate ICT in their academic institutions, however not all locations and schools are using e-resources equally.

While metropolitan universities have adopted digital library services extensively, institutions in semi-urban and hilly regions, such as the Kumaun division of Uttarakhand, often face infrastructural and training-related challenges. Limited internet connectivity, lack of digital literacy, and insufficient awareness among users hinder the optimal utilization of e-resources, thereby affecting the quality of education and research outcomes. Academic users comprising students, faculty members, and library staff play a central role in ensuring the effective use of e-resources. Their level of awareness, accessibility to digital platforms, and skills in navigating online databases determine the extent to which institutional investments in e-resources yield positive results. Prior research (e.g., Thanuskodi, 2012; Madhusudhan, 2019) has emphasized that higher awareness and technical competence significantly enhance the perceived usefulness and frequency of e-resource usage.

Yet, the literature suggests that there are substantial variations in awareness between groups of users and establishments and more in-depth local studies need to be undertaken. While there are a few national studies conducted in Indian universities on e-resources use, research that investigates Kumaun or other resource-confined areas is scarce. The area's institutions of higher education mostly public or semi-government colleges function with certain limitations to infrastructural and training support, making it important to examine if these factors do influence users in digital participation. And knowledge of these trends can be useful for policy makers, librarians, and academic administrators who want to encourage equitable digital access.

The present study is proposed to fill this research gap by empirically examining the knowledge, usage and perceived adequacy of e-resources among academic users in four colleges of Kumaun region. The research is a mixed method study that combines both quantitative and qualitative methods in order to gain insights into the user's behaviour. Quantitative analysis seeks to identify the most significant aspects influencing knowledge and satisfaction regarding e-resources through statistical techniques such as exploratory factor analysis (EFA), k-means clustering, and logistic regression. Practically, it provides evidence-based recommendations for improving e-resource adoption through digital literacy programs, infrastructural development, and institutional policy support. Moreover, by focusing on the Kumaun region, the research highlights the regional disparities that persist in India's digital transformation of higher education. In summary, key objectives:

1. To identify how often and to what extent of e-resource usage among students, faculty, and library staff in Kumaun region colleges.
2. To identify the major factors influencing awareness and adequacy of e-resources.
3. To classify users based on their awareness and usage behaviour using cluster analysis.
4. To analyse qualitative insights regarding challenges and policy suggestions for improving e-resource utilization.

The research seeks to furnish a comprehensive picture of the engagement of academic users with digital resources within a growing regional environment through thorough examination

of many factors. The results are anticipated to facilitate the formulation of targeted interventions that promote digital inclusion, optimise the allocation of institutional resources, and improve the entire academic ecosystem in the Kumaun region.

2. Literature Review

2.1 Theoretical foundations: TAM and UTAUT

Research on e-resource adoption in higher education commonly draws on the Technology Acceptance Model (TAM) and the Unified Theory of Acceptance and Use of Technology (UTAUT). TAM identifies perceived usefulness and perceived ease of use as core determinants of adoption behaviour (Davis, 1989), while UTAUT extends this to include performance expectancy, effort expectancy, social influence, and facilitating conditions (Venkatesh et al., 2003). Many empirical studies operationalize awareness, access, training, and technical support as the facilitating conditions that mediate the relationship between attitudes and actual use of e-resources (Davis, 1989; Venkatesh et al., 2003). These models offer a robust conceptual frame for interpreting why similar levels of availability of e-resources produce different usage patterns across institutions and regions.

2.2 International evidence: awareness, literacy, and infrastructure

Global studies consistently find that information literacy, institutional facilitation (bandwidth, authentication, subscriptions), and targeted training are key predictors of e-resource usage. Tenopir's synthesis of electronic-resource research highlights long-term shifts in reading and access behaviours since the spread of e-journals; Tenopir and colleagues emphasize that access models, training, and discovery tools strongly shape adoption patterns. Recent multi-country empirical work reinforces this: Ruzegwa (2021) showed that among university students, awareness and information-literacy competence were significant predictors of e-resource usage—training programmes raised usage rates measurably. Al-Maliki's institutional study (2022) likewise reported that ICT infrastructure and structured user training correlated positively with both awareness and frequency of e-resource use among undergraduates. Taken together, international findings indicate that availability alone is insufficient; active facilitation and competency building are essential. Studies from South Asia mirror international results but emphasize the impact of regional infrastructural constraints. For example, Humbhi's comparative study (IAFOR, 2023) of faculty and student use highlighted that limited bandwidth, intermittent power, and sparse local IT support were recurring barriers; nevertheless, where libraries proactively organized orientation sessions, usage rose considerably. Research from Pakistan and neighbouring countries similarly documents that awareness is often moderate-to-high among faculty but lower among students—training and library mediation close much of this gap.

2.3 Indian empirical studies: patterns, methods, and regional variability

Indian research on e-resource awareness and use has grown substantially in the last decade, but it is skewed toward metropolitan and well-funded institutions. Several empirical studies report the following recurrent patterns: (a) faculty tend to report higher awareness and use than students; (b) training and library advocacy increase use; (c) infrastructural bottlenecks (connectivity, authentication) depress off-campus access; and (d) matching of subscribed

content to curriculum needs affects perceived adequacy (examples include institutional case studies and cross-sectional surveys). Representative Indian investigations include case studies of university and college libraries (e.g., studies of Central and state universities) and specialized surveys of research scholars and undergraduates. Regionally relevant work further emphasizes local constraints. A case study of Kumaun University (Nainital) documented that while researchers were generally familiar with Internet search tools, speed and connectivity problems and a lack of dedicated IT support impeded full use of digital services (Bohra, 2015). In the Kumaun medical-student context, Awasthi et al. (2020) documented high smartphone penetration but highlighted that device use did not automatically translate to productive academic use, an important finding when mobile devices are the primary access channel to e-resources in semi-urban regions.

2.4 Policy and institutional drivers: NEP 2020 and national consortia

Policy frameworks provide both impetus and expectations for digitalization. India's National Education Policy (NEP 2020) stresses digital learning, open educational resources (OERs), and improved ICT integration in higher education which makes institutional adoption of e-resources a policy priority. However, NEP's ambitions require local capacity building, infrastructure investments, and sustained training to be effective in semi-urban and hilly regions. National-level consortia (e.g., INFLIBNET's N-LIST and E-Shodh Sindhu) expand institutional access to e-journals and databases, but uptake depends on local promotion and user competence.

2.5 Identified gaps and positioning of the present study

Despite a growing body of empirical literature on e-resource use, important gaps remain. First, geographic bias: most large surveys focus on metropolitan, centrally funded universities, leaving semi-urban and hill-region colleges under-represented. Second, device-mediated access (smartphones/tablets) in resource-constrained campuses raises distinct issues (authentication, mobile-friendly interfaces, and content relevance) that are not sufficiently addressed in many studies. Third, triangulated evidence combining EFA, clustering, regression, and qualitative coding in the context of small regional college networks is scarce. This study addresses those gaps by providing an empirically rigorous, mixed-method analysis of awareness, usage, and perceived adequacy of e-resources in four colleges of the Kumaun region, using EFA to identify latent dimensions, K-Means clustering to typify user groups, logistic regression to test predictors of perceived adequacy, and thematic coding to capture contextual barriers. By situating the analysis within TAM/UTAUT frameworks and India's NEP policy environment, the research offers both theoretical refinement (local constraints as moderators of facilitating conditions) and practical policy guidance for regional higher education stakeholders.

3. Research Methodology

3.1 Research Design

The study adopted a mixed-method design, integrating quantitative and qualitative approaches to assess awareness, usage patterns, and satisfaction regarding e-resources among academic users.

3.2 Study area, Population and Sample

The study was conducted in four undergraduate law colleges in the Kumaun region: Chanakya Law College, Rudrapur; Unity Law College, Rudrapur; Satyendra Gudiya Law College, Kashipur; and Vasudev College of Law, Haldwani. Data collection period: April–June 2025. The target population comprised students, faculty members, and library staff from higher education institutions. Using stratified random sampling, a total of 108 valid responses were collected including 74% students, 19% faculty, and 7% library staff ensuring adequate representation of all user groups.

3.3 Data Collection Instrument

A structured questionnaire was used as the primary data collection tool. It included both closed-ended (Likert-scale and categorical) and open-ended items to capture quantitative and qualitative dimensions such as awareness, frequency of usage, and satisfaction levels.

3.4 Data Collection Procedure

Data were collected through online and offline surveys conducted over a defined period. Participation was voluntary, and confidentiality of responses was maintained.

3.5 Data Analysis Techniques

Quantitative data were analysed using SPSS software.

- Descriptive statistics summarized demographic and usage characteristics.
- Correlation and binary logistic regression identified factors influencing perceived adequacy of e-resources.
- Exploratory Factor Analysis (EFA) extracted latent constructs of awareness.
- K-Means cluster analysis classified respondents based on usage and perception profiles.

Qualitative responses were analysed using thematic coding in NVivo, complementing the quantitative findings and providing contextual insights.

3.6 Reliability and Validity

Instrument reliability was confirmed through Cronbach's Alpha (>0.70). Content validity was ensured through expert review and pre-testing of the questionnaire.

4. Analysis and Interpretation

4.1 Demographic Profile of Respondents

Table 1 presents the demographic distribution of respondents. Out of 108 participants, 61.1% were male and 38.9% were female. The majority (74%) were students, followed by faculty (19%) and library staff (7%), ensuring representation from all key user groups.

Table 1. Demographic Profile of Respondents

Variable	Category	Frequency	Percentage (%)
Gender	Male	66	61.1

	Female	42	38.9
Role	Student	80	74.0
	Faculty	20	18.5
	Library Staff	8	7.5
Average Age	—	—	28.3 years

Source: Author's calculations based upon primary data.

The sample demonstrates balanced gender representation and adequate inclusion across academic roles, supporting generalizability of findings within higher education institutions.

4.2 Awareness and Usage of E-Resources

Table 2. Awareness and Usage Patterns

Awareness Level	Frequency	Percentage (%)	Mean Usage (hrs/week)
High	45	41.7	8.2
Moderate	38	35.2	5.4
Low	25	23.1	2.6

Source: Author's calculations based upon primary data.

A majority of respondents (77%) reported moderate to high awareness, though weekly usage remains limited to 5.4 hours on average, indicating scope for enhanced engagement through training and promotion.

4.3 Factor Analysis (EFA)

Exploratory Factor Analysis (Principal Component with Varimax rotation) was conducted on awareness items. Three factors were extracted, explaining 71.6% of total variance (KMO = 0.812; Bartlett's Test $p < 0.001$).

Table 3. Extracted Factors from EFA

Factor	Eigenvalue	% Variance	Label
1	3.28	37.5	Access & Technical Ease
2	2.01	22.4	Content Relevance
3	1.08	11.7	User Support & Training

Source: Author's calculations based upon primary data.

The analysis reveals that awareness and satisfaction are primarily influenced by accessibility, content quality, and user support, aligning with previous empirical studies.

4.4 Cluster Analysis

K-Means clustering identified three respondent groups based on usage and perception scores:

Table 4. User Cluster Profiles

Cluster	Percentage (%) of Respondents	Characteristics
Cluster 1: High Performers	32%	High awareness, frequent users, positive perception
Cluster 2: Moderate Users	48%	Medium awareness, occasional users
Cluster 3: Low Engagers	20%	Limited awareness and satisfaction

Source: Author's calculations based upon primary data.

Nearly half of the respondents fall in the moderate-use category, suggesting institutional initiatives can effectively shift them toward higher engagement.

4.5 Regression Analysis

A binary logistic regression was performed to identify predictors of perceived adequacy of e-resources (Adequate = 1; Not Adequate = 0). Independent variables included awareness, usage frequency, role, and gender.

Table 5. Logistic Regression Results

Predictor	B	S.E.	Wald	Sig. (p)	Exp (B)
Awareness Score	0.732	0.214	11.67	0.001	2.08
Usage Hours	0.154	0.072	4.56	0.033	1.17
Role (Faculty/Student)	0.392	0.185	4.49	0.034	1.48
Gender	0.081	0.162	0.25	0.621	1.08
Constant	-2.11	0.643	10.76	0.001	—

Source: Author's calculations based upon primary data.

Model Fit: Nagelkerke $R^2 = 0.42$; Hosmer-Lem show Test $p = 0.48$

Awareness and usage frequency significantly predict perceived adequacy of e-resources ($p < 0.05$). Role was also significant, indicating faculty perceive higher adequacy than students. Gender had no significant effect.

4.6 Qualitative Findings

Open-ended responses were analysed thematically using NVivo. Three recurring themes emerged:

- i. Limited Training and Technical Support
- ii. Access Restrictions due to Connectivity Issues
- iii. Need for Continuous Orientation Programs

Qualitative insights reinforce quantitative results, highlighting that improved access and training could enhance e-resource utilization and satisfaction.

4.7 Major Findings

- i. Awareness: Most respondents exhibited moderate to high awareness of available e-resources; however, awareness did not always translate into regular usage.
- ii. Usage Patterns: Actual use of e-resources was limited in duration, averaging only a few hours per week, indicating under-utilization despite availability.
- iii. Key Influencing Factors: Accessibility, content relevance, and user support emerged as the primary factors shaping user satisfaction and engagement with e-resources.
- iv. Predictors of Adequacy: Awareness level and usage frequency were found to significantly predict users perceived adequacy of e-resources, while demographic variables showed minimal influence.
- v. User Clusters: Cluster analysis identified three distinct user groups high performers (frequent users with positive perceptions), moderate users (irregular users with moderate satisfaction), and low engagers (limited awareness and minimal use).
- vi. Qualitative Insights: Thematic analysis highlighted a need for structured training programs, improved internet connectivity, and stronger institutional promotion of digital resources to enhance utilization.

5. Discussion

The results of this study are very useful in studying the awareness, access and use of electronic resources (e-resources) by academic users in the four selected law campuses working under Kumaun region. The results generally showed moderate to high awareness of e-resources, but little utilisation in practice due both to infrastructural bottlenecks and diverging extents of digital literacy among users. This finding is consistent with previous research on Indian and global evidence revealing that awareness does not translate into proper use (Singh, 2020; Al-Maliki, 2022; Ruzegwa, 2021). The findings of the Exploratory Factor Analysis (EFA) and Confirmatory Factor Analysis (CFA) indicated that awareness and satisfaction with e-resources are influenced generally by access, content relevance, and user support. The same issues have been available in the studies of Humbhi (2023) and Tenopir and King (2003) where inability to access or lack of training result sometimes reduction in perceived value of digital collection. The pre-eminence of these three factors, at least in the Kumaun scenario, further highlights that it is not just a question of content quality for continued use of e-resources but indeed also that infrastructure readiness and technical support are other critical considerations. The user groups identified in the three clustering patterns typical users, moderate users and low engagers reflected those reported in previous studies of higher education students (Sivakami, 2019; Goel & Malik, 2021). Most users are aware about resources but not exploring due to the reasons like gap in internet connectivity and lack of institution training were declared by most of the users from moderate-use cluster. This phenomenon is in line with the TAM (Davis, 1989) as well as with the UTAUT (Venkatesh et al., 2003), which claim that both behavioural intentions and facilitating conditions mutually shape technology use. This moderate cluster therefore

corresponds to a potential policy intervention target group of non-resistant but unsupported users.

The binary logistic regression results further reinforced that awareness and frequency of use significantly predict the perceived adequacy of e-resources, while demographic factors such as gender had no significant effect. These findings are consistent with studies conducted in Saudi Arabia (Al-Maliki, 2022) and India (Singh, 2020), which demonstrated that awareness and user training programs substantially enhance satisfaction and adoption rates. In contrast, infrastructural and motivational constraints rather than demographic characteristics tend to limit usage. Therefore, expanding digital literacy initiatives and user orientation sessions may yield more effective results than broad demographic targeting. From a theoretical standpoint, this study contributes to existing frameworks by confirming the mediating role of facilitating conditions such as access and technical support—within TAM and UTAUT models. In semi-urban and hilly regions like Kumaun, facilitating conditions are not uniform; rather, they act as critical moderators of user behaviour. Thus, the present findings suggest that the traditional constructs of “perceived ease of use” and “perceived usefulness” are context-dependent and influenced by infrastructural quality. This regional perspective extends prior models by introducing geographical and institutional moderators into the interpretation of technology adoption in education. The qualitative findings complement the quantitative evidence, highlighting three recurring barriers: (1) lack of structured training on resource use; (2) inconsistent internet connectivity; and (3) inadequate promotion of available e-resources. These insights echo earlier research from both developed and developing contexts (Tenopir, 2003; Humbhi, 2023; Ruzegwa, 2021), which collectively emphasize that institutional support and continuous digital literacy development are essential for sustained engagement. Respondents’ suggestions for periodic workshops, better infrastructure, and simplified access mechanisms provide actionable directions for policymakers and administrators.

The results show clear effects on how colleges and universities are managed in Uttarakhand and similar areas. This definitely helps make better policies for higher education in these regions. As per current needs, institutions must go beyond just buying digital subscriptions and build complete digital systems that include awareness, access, and technical help. Regarding this change, they need to create proper ecosystems that work together. State education departments can actually create local training programs under NEP 2020, which definitely focuses on digital learning and equal access for all students. Inter-college collaborations can further help share resources and expertise itself to reduce duplication and optimize resource use. Basically, academic institutions need to focus on keeping users engaged for longer periods, and the same approach should be consistent over time. Libraries should take active steps by organizing orientation programs and creating multilingual user guides, and further ensure 24-hour technical support. This approach itself will help users access library services more effectively. We are seeing that taking feedback from users for subscription choices can only make content more relevant and valuable to them. As per the curriculum requirements, adding e-resource literacy to professional courses like law can make digital skills a regular part of academic training. This will help students learn digital competence regarding their studies. This study shows that students in Kumaun region colleges know about e-resources, but they cannot use them properly due to access problems and lack of support. Further research is needed to

understand how the usage itself can be improved. We are seeing that the results match global research patterns, but they only add a local angle by showing how infrastructure and location factors affect technology use in colleges and universities. As per the study results, the findings help improve existing acceptance models and guide institutions regarding policy changes to build better digital learning environments for all students.

6. Conclusion and Recommendations

The objective of the study is to measure the awareness, use and adequacy of e-resources among academic users in four law colleges of Kumaun region namely Chanakya Law College, Unity Law College, Satyendra Chandra Gudiya Law College and Vasudev College of Law. The study found that typical levels of awareness are moderate to high but that actual use is low – this can be mainly attributed to infrastructural and technical restrictions. Three underlying constructs accessibility, content relevance and user support which are significantly shaping users' interaction with e-resources were unraveled by means of Exploratory Factor Analysis. Findings from the logistic regression analysis indicate that awareness and frequency of usage are strongly associated with perceived adequacy for use, while demographic factors like gender or role play a marginal role. Qualitative findings also suggested that lack of training, limited internet access, and poor promotion of digital services as key barriers to effective usage. Structured digital literacy programs, regular user training workshops and orientation sessions targeting students and staff are needed to improve awareness and access. Investment in stable internet infrastructure and updated e-resource subscriptions is equally essential. Libraries should adopt a proactive role in promoting digital platforms through user guides, multilingual tutorials, and integration of e-resource usage within coursework. Collaboration among regional colleges under initiatives such as INFLIBNET's N-LIST can also optimize access and resource sharing. The study is limited to four law colleges within a single region; therefore, findings may not fully represent other academic disciplines or geographic contexts. Future research could adopt a longitudinal or comparative design involving multiple regions to explore evolving usage behaviours and the long-term effects of institutional interventions. Broader cross-state studies could also validate the role of infrastructural and policy variables in shaping digital adoption in higher education across India.

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