Utilization Patterns and Access Issues of Digital Library Resources: A Study of Central Universities in Uttar Pradesh

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ABSTRACT

This study explores the usage trends and access challenges of digital library resources at the Central Universities of Uttar Pradesh. Its objective was to assess the accessibility of digital resources, the impact of technology on libraries, and the awareness and usage of e-resources among users. The methodology included a descriptive study design, combining qualitative and quantitative approaches through a structured questionnaire, interviews, and statistical analysis. Out of 300 distributed questionnaires, 222 were completed, yielding a 74% response rate. Results showed that while users are aware of digital resources, their utilisation is hindered by issues such as inadequate computers, slow internet speeds, and insufficient support from library staff. Chi-square analysis confirmed a significant correlation between awareness and usage and identified access challenges that negatively impact utilization.The study recommends enhancing user training, improving infrastructure, and launching targeted awareness campaigns to help libraries better utilize their digital resources.

Keywords: Academic Library; Digital Library; E-Resources; User Education; User Study.

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1. INTRODUCTION

Digital library resources have transformed the way we access, store, and share information, providing unprecedented freedom from geographical and economic limitations. Libraries continuously incorporate evaluation activities and strategies to develop services and resources tailored to their users.

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They promote inclusivity by addressing diverse learning styles, abilities, and interests. By offering 24/7 accessibility, digital libraries enable both students and educators to engage with materials at their convenience, thereby enhancing learning in both traditional and virtual environments.

This democratization of knowledge allows users to access a vast array of e-books, scholarly journals, multimedia content, and specialized databases anytime and anywhere, as long as they have an internet connection (Vickery & Vickery, 2004). These resources encompass a wide spectrum of content, including e-books, scholarly articles,

multimedia resources, and interactive simulations, all designed to support various educational needs. This accessibility is particularly valuable for students and researchers in remote or under-resourced regions, where access to physical libraries may be limited.

The integration of digital library services has led to significant benefits, including broader access to knowledge, improved learning outcomes, and quicker dissemination of academic feedback (Colegrove, 2018).

2. STATEMENT OF THE PROBLEM

The central university libraries in Uttar Pradesh face several challenges and opportunities when evaluating the influence of their digital library resources and services. One key challenge is assessing the comprehensibility and effectiveness of these resources in enhancing student learning outcomes. This issue can be addressed by conducting surveys or interviews with students to gather their feedback on the usefulness and relevance of specific digital resources in their academic journeys.

Another challenge is measuring the level of usage and engagement with digital library resources. This can be overcome by collecting data on the number of visits to digital library platforms, the amount of time spent on these platforms, and the specific resources accessed by users. Additionally, analyzing the impact of digital library resources on research productivity and scholarly output presents another challenge (Chow, Baity, Zamarripa, Chappell, Rachlin, & Vinson, 2012).

3. SCOPE OF THIS STUDY AND LIMITATION

The topic of study, "Utilization Patterns and Access Problems of Digital Library Resources: A Study of Central Universities in Uttar Pradesh," has certain limitations. This study is limited to six Central Universities situated in Uttar Pradesh. The state includes 83 universities, the second-highest in India after Rajasthan, and also has six Central Universities, which is the second-highest number in India after Delhi. The selection of these six Central Universities is thus justifiable considering their national significance, wide academic variety, and enhanced representation of research-oriented users. The scope of this study is limited to the library users of Central Universities in Uttar Pradesh, who are frequent users of library resources and services.

The survey exclusively includes faculty members, research scholars, and postgraduate students as respondents, as these groups are the most important and frequent users of library resources and services. To ensure the reliability and relevance of research-intensive library utilization responses, undergraduate students were excluded from the sample as they are in the early stages of study and typically do not engage with advanced academic resources. The study aims to examine the challenges and opportunities of assessing digital library resources and services in Central University libraries of Uttar Pradesh, which will help inform future decision-making and improve the quality of educational and research support for students and faculty members based on users' opinions. Among the 300 questionnaires distributed, 222 responses were received, resulting in a response rate of 74%. This study is being conducted for six libraries of Central Universities in Uttar Pradesh.

4. SIGNIFICANCE OF THE STUDY

This paper explores the promising challenges and opportunities presented by digital library resources and services in the Central University libraries of Uttar Pradesh. It highlights their positive impact on student learning outcomes, engagement, research productivity, and user experience. By examining the specific information needs of virtual library users, the study aims to evaluate how effectively current services meet those needs. The insights gained will enrich our understanding of how digital resources can significantly enhance educational practices and research activities, paving the way for a brighter and more connected academic future!

5. REVIEW OF LITERATURE

Exciting strides are being made in the realm of digital library resources, as researchers explore their functionality and the level of satisfaction among library patrons. A fantastic way to gauge this is by tracking the number of research articles published by faculty and students who utilize these valuable digital

resources. A study by Khan, Ahmed, Khan, and Khan (2017) shed light on how digital library resources (DLR) positively influence user satisfaction and enhance research productivity. Their research unveiled that the frequency and intention behind using these resources not only boost the happiness of research students but also significantly enhance their overall productivity. The strong relationship they highlighted between DLR objectives, usage frequency, and crucial outcomes, such as user satisfaction, truly emphasises the importance of accessible information sources in fostering a vibrant, knowledge-driven academic community.

In another enlightening contribution, Mathur (2005) conducted a literature survey that paints a comprehensive picture of digital libraries. This work outlines what constitutes a 'digital library,' discusses the essential need for digitization, and critically evaluates the scenario in India, addressing performance indicators and challenges faced during implementation. Furthermore, the study by Eccles, Thelwall, and Mayer (2011) illustrated how online digitised resources leave behind valuable traces that can be analysed to evaluate their impact. However, it also noted the challenges posed by shifting URLs and consolidation into larger collections.

To truly support researchers in their academic pursuits, libraries must seamlessly integrate several resources, including digital assets, information technology, strategic financial planning, and proactive service promotion, forming a cohesive knowledge management framework (Rafi, JianMing, & Ahmad, 2020). Chowdhury (2024) explored contemporary trends and challenges in academic library digital transformation and e-resource use, highlighting that faculty members, research scholars, and postgraduate students frequently turn to e-resources for various tasks, including research and literature reviews, often favouring remote access due to their busy schedules.

Nonetheless, there are still hurdles to overcome, such as limited database subscriptions, internet connectivity issues, and the need for digital literacy, which make effective utilization of digital libraries challenging. The research strongly advocates for user training, targeted awareness initiatives, and librarian support to bridge these gaps, particularly in Indian university libraries, where common infrastructural and user-related challenges hinder access and enjoyment of library websites and e-resources (Muthyalaiah & Pavan Kumar, 2022).

Notably, the evaluation of digital library resources in Telangana University libraries, particularly from the viewpoint of library and information science (LIS) professionals, revealed some promising insights. Many professionals expressed positive sentiments regarding aspects such as usefulness, technological infrastructure, and website design. However, it also highlighted variations in usability, service quality, and depth of collections, pointing to the need for improvements in uniform access and user experience. These findings highlight the critical importance of user-friendly digital library interfaces and a well-structured website in maximising the utilisation of digital resources. Kapoor and Jhadav (2023) also contributed to the discourse by analyzing the evolution and adoption of digital libraries at the university level with an emphasis on usability, accessibility, and user satisfaction. Their findings underscored that the widespread adoption of digital library services hinges on an intuitive interface, reliable internet performance, and efficient discovery systems. They further pinpointed challenges such as low digital literacy and complex interfaces, advocating for user-centred design, high-quality service, and effective discovery tools to significantly improve access to digital collections.

These insights are especially vital for Indian university libraries, where enhancing website usability and service quality can significantly elevate the perception and usage of digital resources. The collective research reflects an enthusiastic outlook on the future of digital libraries and their role in empowering academic success. By addressing existing challenges with innovative solutions, we can look forward to a vibrant landscape of digital resources that meet the needs of all users.

6. OBJECTIVE OF THE STUDY

The objectives of the study:

(i) To find out the availability of digital and electronic resources and online services in the Central University of Uttar Pradesh libraries.

(ii) To measure the impact of digital technologies on the operations and service delivery of the Central Universities of Uttar Pradesh libraries.

(iii) To assess user awareness of the university library's digital and electronic materials.

(iv) To identify the problems faced by library users while using resources and services.

7. METHODOLOGY

The study utilized a descriptive survey research design with a quantitative methodology to examine the usage patterns of digital library resources and access-related issues among users at central universities in Uttar Pradesh. The target population included faculty members, researchers, and postgraduate students, as they are the primary users of digital resources. Undergraduate students were excluded from the study due to their limited engagement with e-resources.

Uttar Pradesh, which has a total of 83 universities, the second-highest number after Rajasthan, also has six Central Universities, the second-highest number after Delhi. Central Universities are designated research institutions established by Acts of Parliament to serve a diverse academic community. By including all six Central Universities, the research ensures comprehensive coverage, educational diversity, and representation of research-focused users, thereby enhancing the study's relevance to digital library resource utilisation.

A purposive sampling method was employed, distributing 300 structured questionnaires from April 2023 to November 2024, resulting in 222 valid responses and a response rate of 74%. Data were collected through personal visits to the universities and via an online structured questionnaire using Google Forms.

8. DATA ANALYSIS AND INTERPRETATION

The data collected from structured questionnaires were systematically analyzed using descriptive statistical techniques, such as frequencies and percentages, to summarize the respondents' profiles and usage patterns. The data interpretation focused on identifying trends, relationships, and variations in the use of digital library resources. The findings were aligned with the study's objectives to draw meaningful conclusions about user awareness, usage behaviour, and access-related issues.

8.1 Gender wise Responses

The gender distribution of respondents offers insights into the participation of male and female users in the study, providing a demographic overview of the sample population. Table 1 presents the gender-specific data collected from the respondents. After analyzing all 222 responses, we found that 144 (64.86%) are men and 78 (35.14%) are women.

Table 1: Gender wise Responses

Gender	No. of Respondents	Percentage
Male	144	64.86
Female	78	35.14
Total	**222**	**100.00**

Source: Author's own work.

8.2 User Type-wise Response

The study focuses on three user categories: faculty members, research scholars, and postgraduate students. Table 2 presents specific information related to each type of respondent. Out of a total of 222 responses, 124 (55.86%) are postgraduate students, 75 (33.78%) are research scholars, and 23 (10.36%) are faculty members.

Table 2: User Type-wise Response

User Type	No. of Respondents	Percentage
Faculty Members	23	10.36
Research Scholar	75	33.78
PG Student	124	55.86
Total	**222**	**100.00**

Source: Author's own work.

8.3 University-wise Response

Table 3 presents the responses categorized by university. Out of a total of 222 responses, the highest number came from the University of Allahabad, which received 72 responses (32.43%).

Banaras Hindu University followed this with 58 responses (26.13%), Aligarh Muslim University with 34 responses (15.32%), Baba Sahab Bhimrao Ambedkar University with 31 responses (13.96%), Rajiv Gandhi National Aviation University with 16 responses (7.21%), and finally, Rani Laxmibai Kendriya Vishwavidhyalay with 11 responses (4.95%).

Table 3: University-wise Response received

Name of University	Responses	%
Aligarh Muslim University	34	15.32
Banaras Hindu University	58	26.13
University of Allahabad	72	32.43
Rajiv Gandhi National Aviation University	16	7.21
Baba Sahib Bhimrao Ambedkar University	31	13.96
Rani Laxmibai Kendriya Vishwavidhyalay	11	4.95
Total	**222**	**100.00**

Source: Author's own work.

8.4 Enhancement of Library collection

The users' perceptions regarding the continuous improvement of library resources, particularly the acquisition of new digital journals and e-books, have been examined. Table 4 highlights the significance of regularly updating library collections. A majority of respondents, 151 (68.02%), indicated that the library consistently subscribes to new digital journals. Additionally, 181 (81.53%) respondents noted that the library regularly acquires new digital books to enhance its collection.

Table 4: Enhancement of Library collection

Regular Collection Enhancement	Yes	No	Total
The library subscribes to new digital journals	151(68.02%)	71(31.98%)	222
The library subscribes to new digital books	181(81.53%)	41(18.47%)	222
Total	**332(74.77%)**	**112(25.23%)**	**444**

Source: Author's own work.

8.5 Frequency of utilization of E-Resources

The analysis examines how frequently respondents utilize electronic resources and the time they spend accessing these resources during their library visits. Table 5 presents the frequency of e-resource usage by the respondents and the duration of their library visits.

Among 222 responses, 87 respondents (39.19%) who visit the library daily spend between 0 and 1 hour using e-resources, while 61 respondents (27.48%) spend 1 to 2 hours using e-resources. For weekly visitors, the majority reported spending 1 to 2 hours (62 respondents, or 27.93%) and 0 to 1 hour (54 respondents, or 24.32%) utilizing e-resources.

Among fortnightly visitors, 72 respondents (32.43%) reported spending 2 to 3 hours on e-resources, and 68 respondents (30.63%) reported spending 1 to 2 hours on e-resources. Monthly visitors spent the most time with e-resources, with 32.43% (54 respondents) spending 3 to 6 hours during their visits.

Table 5: Frequency of utilization of E-Resources

Frequency of Utilization E-Resources	0-1Hours	1-2Hours	2-3Hours	3-6Hours	6Hours More than	Total
Daily	87 (39.19%)	61 (27.48%)	38 (17.12%)	22 (9.91%)	14 (6.31%)	222
Weekly	54 (24.32%)	62 (27.93%)	51 (22.97%)	33 (14.86%)	22 (9.91%)	222
Fortnightly	43 (19.37%)	68 (30.63%)	72 (32.43%)	23 (10.36%)	16 (7.21%)	222
Monthly	16 (7.21%)	32 (14.41%)	54 (24.32%)	72 (32.43%)	48 (21.62%)	222
Total	**200 (22.52%)**	**223 (25.11%)**	**215 (24.21%)**	**150 (16.89%)**	**100 (11.26%)**	**888 (100%)**

Source: Author's own work.

8.6 Awareness about E-resources

The users' awareness of various electronic resources available in the library, such as e-books, e-journals, databases, and other digital services, is highlighted in Table 6.

Among the respondents, 195 (87.84%) are aware of e-books, while 178 (80.18%) are aware of e-journals, which they use regularly. Additionally, 167 (75.23%) are aware of e-theses and e-dissertations. A significant majority, 211 (95.05%), are aware of e-magazines and regularly use this resource.

Moreover, 121 (54.50%) of respondents are aware of e-newsletters, and 153 (68.92%) are aware of e-newspapers, which they read online. Furthermore, 141 (63.51%) are familiar with

indexing and abstracting databases, while 185 (83.33%) are aware of full-text databases that they typically use for research work.

In terms of multimedia resources, 158 (71.17%) regularly use CD-ROMs or DVDs, and 138 (62.16%) are aware of the Institute Repository. Additionally, 148 (66.67%) are aware of subject-specific portals, and 124 (55.86%) regularly use search engines, such as Google, indicating their overall awareness of search engines.

Table 6: Awareness about E-resources

Awareness about E-resources	Yes	No	Total
e-books	195 (87.84%)	27 (12.16%)	222
e-journals	178 (80.18%)	44 (19.82%)	222
e-theses/ e-dissertations	167 (75.23%)	55 (24.77%)	222
e-magazines	211 (95.05%)	11 (4.95%)	222
e-newsletters	121 (54.50%)	101 (45.50%)	222
e-newspapers	153 (68.92%)	69 (31.08%)	222
Indexing/ abstracting databases	141 (63.51%)	81 (36.49%)	222
Full text databases	185 (83.33%)	37 (16.67%)	222
CD ROMs/ DVDs	158 (71.17%)	64 (28.83%)	222
Institute Repository	138 (62.16%)	84 (37.84%)	222
Subject-specific portals	148 (66.67%)	74(33.33%)	222
Search engines like Google	124 (55.86%)	98(44.14%)	222
Total	**1724 (70.60%)**	**718 (29.40%)**	**2442 (100%)**

Source: Author's own work.

8.7 Frequency of Use of E-Resources

The usage frequency of electronic resources illustrates how often respondents access various types of e-resources, categorized as 'never,' 'rarely,' 'sometimes,' and 'frequent**ly.'** Table 7 presents the data on e-resource usage.

E-books are the most commonly used, accessed by 113 individuals (50.90%). E-journals and e-theses/e-dissertations are also frequently used, with 98 users (44.14%) accessing e-journals and 86 users (38.74%) accessing e-theses. Similarly, e-magazines, full-text databases, CD-ROMs/DVDs, and institutional repositories are frequently utilized, with usage rates of 97 users (43.69%), 112

users (50.45%), 99 users (44.59%), and 109 users (49.10%) respectively.

In contrast, e-newspapers and indexing/abstracting databases are used occasionally, with usage rates of 84 users (37.84%) and 88 users (39.64%), respectively. Search engines, such as Google, are accessed by 78 individuals, accounting for 35.14% of the total responses. Users rarely access e-newsletters and subject-specific portals, with response rates of 74 users (33.33%) and 88 users (39.64%), respectively.

Table 7: Frequency of use of e-Resources

Frequency of use of e-Resources	Frequently	Sometimes	Rarely	Never	Total
e-books	113 (50.90%)	88 (39.64%)	13 (5.86%)	8 (3.60%)	222
e-journals	77 (34.68%)	98 (44.14%)	33 (14.86%)	14 (6.31%)	222
e-theses/ e-dissertations	74 (33.33%)	86 (38.74%)	41 (18.47%)	21 (9.46%)	222
e-magazines	97 (43.69%)	93 (41.89%)	18 (8.11%)	14 (6.31%)	222
e-newsletters	24 (10.81%)	57 (25.68%)	74 (33.33%)	67 (30.18%)	222
e-newspapers	74 (33.33%)	84 (37.84%)	42 (18.92%)	22 (9.91%)	222
Indexing/ abstracting databases	52 (23.42%)	88 (39.64%)	44 (19.82%)	38 (17.12%)	222
Full text databases	112 (50.45%)	52 (23.42%)	22 (9.91%)	36 (16.22%)	222
CD ROMs/ DVDs	99 (44.59%)	74 (33.33%)	33 (14.86%)	16 (7.21%)	222
Institute Repository	109 (49.10%)	65 (29.28%)	38 (17.12%)	10 (4.50%)	222
Subject-specific portals	56 (25.23%)	48 (21.62%)	88 (39.64%)	30 (13.51%)	222
Search engines like Google	68 (30.63%)	78 (35.14%)	66 (29.73%)	10 (4.50%)	222
Total	**955 (35.85%)**	**911 (34.20%)**	**512 (19.22%)**	**286 (10.74%)**	**2664 (100%)**

Source: Author's own work.

8.8 Problems Facing Using/Accessing E-Resources

The study highlights the major challenges users encounter when accessing and utilizing e-resources. These issues include infrastructural limitations, a lack of awareness and guidance, as well as difficulties in retrieving relevant information.

Table 8 presents the problems faced by users while using or accessing e-resources. Among the respondents, 128 (57.66%) reported that a lack of computer terminals in the library is a significant issue. Additionally, 137 (61.71%) experienced challenges due to insufficient Internet facilities when trying to access e-resources.

The problems also extend to slow access speeds, with 126 (56.76%) of users finding that it takes too long to download pages. Furthermore, 145 (65.32%) acknowledged a lack of awareness about the available e-resources, while 118 (53.15%) expressed concerns over the lack of guidance regarding these resources. Importantly, 152 (68.47%) indicated they have difficulty finding relevant information, and 123 (55.41%) reported a lack of time to access e-resources.

Table 8: Problems Faced in Using/Accessing E-Resources

Problems Facing Using/Accessing E-Resources	Yes	No	Total
Lack of computer terminals in the library	128 (57.66%)	94 (42.34%)	222
Lack of Internet facility	137 (61.71%)	85 (38.29%)	222
Slow access speed/ takes too long to download pages	126 (56.76%)	96 (43.24%)	222
Lack of awareness about e-resources	145 (65.32%)	77 (34.68%)	222
Lack of awareness about e-resources	145 (65.32%)	77 (34.68%)	222
Lack of guidance regarding the availability of e-resources	118 (53.15%)	104 (46.85%)	222
Difficulty in finding relevant information	152 (68.47%)	70 (31.53%)	222
Lack of time to access the e-resources	123 (55.41%)	99 (44.59%)	222
Total	**929 (59.78%)**	**625 (40.22%)**	**1554 (100%)**

Source: Author's own work.

9.   FINDINGS OF THE STUDY

The study's major findings are as follows:

• Out of the respondents, 144 (64.86%) were male, and 78 (35.14%) were female. Among user types, 124 (55.86%) were postgraduate students, 75 (33.78%) were research scholars, and 23 (10.36%) were faculty members.

• The University of Allahabad had the highest response with 72 respondents (32.43%), followed by Banaras Hindu University with 58 (26.13%) and Aligarh Muslim University with 34 (15.32%). Rani Laxmibai Kendriya Vishwavidyalay had the lowest response rate of 11 (4.95%).

• Regarding library collections, 151 respondents (68.02%) stated the library subscribes to new digital journals, while 181 respondents (81.53%) confirmed subscriptions to new digital books.

• Most users, 39.19%, access electronic resources daily for 0-1 hour

• Awareness of e-resources is high, with 70.60% of users knowledgeable about them, especially e-magazines (95.05%).

• Frequent usage of e-books and full-text databases is reported by 50.90% and 50.45% of users, respectively.

• Challenges include 68.47% reporting difficulty finding relevant information, 65.32% lacking awareness of e-resources, and 61.71% citing poor internet access as a barrier.

10.   SUGGESTIONS AND RECOMMENDATIONS

Central university libraries offer a wide range of electronic resources to their users; however, many users struggle to utilise these resources effectively. Various challenges and issues have surfaced when users attempt to access these materials. This study suggests that libraries should implement training and awareness programs to enhance users' understanding of e-resources. Users need to be trained in selecting, evaluating, and obtaining the information they need.

The findings indicate that the methods used to inform library users about e-resources and e-services at the Central University of Uttar Pradesh library are effective. Nonetheless, when analysing the frequency of e-resource utilisation, users do not spend a considerable amount of time accessing these electronic resources. This could be attributed to multiple factors, including user-related issues, as detailed in Table 5. Further research is necessary to investigate the challenges faced by library users in

accessing electronic resources at university libraries.

The results of this study highlight that users' awareness of and the problems they encounter while accessing e-resources directly affect their use of digital library services. To improve usage, libraries should provide regular training, raise awareness about available e-resources, and offer guidance on how to utilize these services effectively. Enhancing infrastructure, such as increasing the number of computer systems, providing faster internet access, and ensuring reliability, will also help alleviate difficulties users face. Additionally, offering clear instructions, dedicated help desks, and straightforward online tutorials can further support users. By improving both awareness and access, libraries can significantly increase the effective use of digital resources.

11. IMPLICATIONS FOR POLICY AND PRACTICE

The findings of this study highlight key implications for policy and library practices in Central Universities of Uttar Pradesh. University administrations should invest in digital infrastructure, such as high-speed internet, computer terminals, and remote access facilities. Library policies should include regular user education and digital literacy programs to improve the effective use of electronic resources.

Practically, libraries should implement user-friendly website designs, simplify access, and enhance guidance services. Librarians must actively conduct orientation programs and targeted awareness campaigns for different user groups. These measures will boost the effective use of digital library resources and strengthen academic and research support in Central Universities.

12. CONCLUSION

The libraries at Central Universities in Uttar Pradesh offer a diverse range of digital resources and services designed to enhance information accessibility for students, faculty, and researchers. Despite this, they face significant challenges in effectively establishing and using these resources.

A study indicated that faculty at JAIN (Deemed-to-be University) experienced a notable improvement in their learning environment through the use of electronic resources, and they reported satisfaction with their accessibility. Meanwhile, BHULS has a robust infrastructure of e-resources, but users are seeking formal collaborative spaces equipped with modern technologies to foster active and collaborative learning.

The findings indicate that while many users believe the library is enhancing its digital collection and are aware of the available resources, their engagement with e-resources is limited. This is attributed to various challenges encountered when accessing these materials. To improve usage, library authorities should enhance awareness programs and provide hands-on training for users. Additionally, expanding digital collections alone is insufficient; libraries must also strengthen digital infrastructure, improve user support, and promote digital literacy. Regular orientation, user-friendly interfaces, and active involvement from library staff are crucial in bridging the gap between awareness and effective usage. By addressing these challenges, Central University libraries can maximize their digital resources and enhance academic outcomes.

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