Asian Journal of Social Science and Management Technology
ISSN: 2313-7410
Volume 7, Issue 6, November-December, 2025
Available at www.ajssmt.com

Digitalisation and Service Quality in University Libraries: An Empirical Study of Telangana State

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Abstract: The transformation of university libraries through digitalisation has significantly reshaped the academic information landscape. This study investigates the extent, effectiveness, and challenges of digital library services in university libraries across Telangana State, India. Drawing from a survey of 268 library users, the research evaluates the perceived quality of digital services, infrastructure availability, role of library professionals, and implementation of digital rights and security policies. The analysis reveals that while digital adoption has improved access, efficiency, and user satisfaction in several institutions, disparities in infrastructure and policy enforcement persist. The study also finds a positive correlation between the quality of digital services and overall user satisfaction. The findings suggest that continuous investments in staff training, digital resource development, and unified digital policy frameworks are essential to maximize the potential of digital libraries. This empirical assessment contributes valuable insights for academic administrators and policymakers aiming to enhance the digital infrastructure of university libraries in emerging academic ecosystems.

Keywords: Digital Libraries, Service Quality, University Libraries, Telangana, Digitalisation, Library Management, User Satisfaction, Digital Rights Management, Library Services Evaluation, ICT in Higher Education

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1. Introduction

1. Overview of Information Services Evolution in Academic Libraries

Academic libraries have undergone a significant evolution in the way they deliver information services. Traditionally centered around physical collections, manual cataloging, and face-to-face reference services, academic libraries served as quiet, physical spaces for accessing knowledge. However, with the rapid expansion of Information and Communication Technologies (ICT), libraries have shifted from being purely physical entities to becoming digitally integrated learning environments (Tenopir, 2003). The transformation has been driven by the need to support increasingly digital learning ecosystems, open access publishing, and the growing expectations of digital-native students (Pinfield et al., 2017).

The integration of digital services in libraries has expanded access to knowledge resources beyond the confines of physical spaces and limited operating hours. Libraries now offer 24/7 access to electronic databases, e-books, online journals, virtual reference services, and institutional repositories. With digital interfaces such as OPACs (Online Public Access Catalogues), discovery tools, and remote authentication systems, users are empowered to

access and retrieve academic content anytime and anywhere (Joo & Choi, 2015). This shift represents a move from collection-centered to user-centered models, placing greater emphasis on usability, accessibility, and personalized learning support.

2. Discussion of Digital Initiatives at National and Regional Levels

India has witnessed significant policy-level and institutional efforts to digitalize academic libraries, particularly in higher education. The Ministry of Education (formerly MHRD) launched several national digital initiatives to foster inclusive access to scholarly resources. Projects such as the National Digital Library of India (NDLI), e-ShodhSindhu, Shodhganga, and SWAYAM have facilitated the dissemination of digital content to universities and students nationwide (MHRD, 2020). e-ShodhSindhu provides access to over 10,000 core and peer-reviewed journals and a large number of bibliographic, citation, and factual databases in different disciplines to universities and colleges (UGC, 2021). The National Digital Library has curated more than 55 million digital resources across languages and formats, accessible through a single search interface (NDLI, 2023).

At the regional level, many universities in Telangana have implemented campus-wide digital library systems. Initiatives include setting up digital repositories, subscribing to digital databases, integrating RFID systems, and providing remote access to resources. However, the degree of implementation and adoption varies significantly across institutions. While some leading public universities exhibit advanced digital infrastructures, others—especially newly established or rural-based colleges—face constraints such as low bandwidth, limited budgets, and lack of trained manpower (Reddy & Kumari, 2021).

3. Review of Digital Service Quality Literature and Evaluation Frameworks

Service quality in digital libraries is a widely discussed subject in LIS research. The conceptualization of digital service quality encompasses multiple dimensions including system usability, resource reliability, content relevance, interface design, and responsiveness (Zhang & Li, 2004). Various models such as SERVQUAL, DigiQUAL, WebQual, and the E-S-QUAL scale have been applied to evaluate user perceptions of service quality in digital library settings (Parasuraman et al., 2005; Kiran, 2010). The DigiQUAL model, for instance, is designed specifically for academic libraries and focuses on digital collections, user support, and interface quality (Kiran & Diljit, 2012). Studies show that users' satisfaction with digital services is directly related to ease of access, system responsiveness, resource reliability, and availability of support (Soria et al., 2017). Researchers also highlight that digital literacy levels and staff involvement significantly influence the perceived quality of library services (Tripathi & Jeevan, 2009). Despite the wealth of global literature, region-specific research—especially in Indian states like Telangana—remains sparse. Most frameworks developed in Western contexts may not fully capture local challenges such as infrastructure disparities, linguistic diversity, and policy enforcement issues. Therefore, adapting these models to evaluate Indian university libraries is both relevant and necessary. Trivedi et al. evaluated e-service quality in an Indian federal university library, using a 22-attribute Likert survey with 239 respondents. All dimensions—OPAC, website usability, electronic equipment, and user education—scored in the "good" range (mean 3.0–4.0), but none reached "excellent." The study suggested focused improvements in infrastructure and e-service delivery (Trivedi et al., 2021). In a multi-college study across a developing country, the researchers found SERVQUAL-based dimensions—reliability, tangibles, responsiveness—significantly affected user satisfaction. The study emphasized the need for libraries to align service delivery with user expectations for enhanced satisfaction (Mahmood et al., 2021). Using the E-S-QUAL framework among 350 research scholars at SOA University, Odisha, Dalbehera reported that system availability, privacy, fulfillment, and efficiency significantly influenced perceived e-service quality and loyalty intentions (Dalbehera, 2021). Focusing on Kerala's special libraries, this modified SERVQUAL survey of 800 users revealed high expectations but low perceived performance—libraries consistently underperformed in tangibles and reliability, stressing the importance of orientation and resource updates (Sajna & Haneefa, 2021). Surveying Solapur University college libraries, they found Web 2.0 tools like blogs, wikis, and RSS were under-utilized due to lack of awareness and training. They recommended systematic user education to raise e-resource utilization (Patel et al., 2021). In a companion study, these authors examined user awareness and utilization of electronic resources among over 1,000 library patrons. Despite availability, low awareness and inconsistent training resulted in limited use of e-resources (Patel et al., 2021b). This nationwide Indian study analyzed e-resource management issues across

universities. Findings stressed that gaps in professional skills among LIS staff were a major cause of management challenges, especially in subscriptions and technology handling (Subaveerapandiyan et al., 2022). Their systematic review identified that most library service quality studies use models like SERVQUAL, WebQual, and DigiQUAL, but research often neglects regional user populations. They called for more studies tailored to local institutional contexts (Mamta & Kumar, 2023). By comparing digital reference services across university websites, the authors highlighted disparities in chat, email, FAQ, and real-time help features. They stressed the importance of standardizing digital reference tools to improve consistency and user trust (Mondal & Bhattacharya, 2023). Reviewing user perceptions in higher education institutions, they found that despite technological advances, usability issues—slow loading, outdated content, complex navigation—drove users to prefer generic search engines over library systems, underscoring design and access issues (Suharto & Abdul Kadir, 2021). In a study of digital library services impacting user satisfaction, researchers noted that collection relevance, interface clarity, responsiveness, and resource currency all contribute to satisfaction—failure in any dimension reduces overall perceived quality (Liabor et al., 2023). Applying the Technology Acceptance Model to Korea, they found perceived usefulness and ease of use significantly influenced satisfaction with discovery systems in academic libraries, suggesting strong parallels in the service-quality curve (Joo & Choi, 2022). They argued that successful digital transformation in higher education requires coherent strategy, infrastructure investment, and sustained staff training. Their model addresses maturity across services, governance, administration, and library integration (Ramadania et al., 2024). Content analysis of West Bengal private university library websites in 2024 revealed wide variability—most ranked "good" but several required improvement. Only one website achieved "excellent" in terms of content richness and usability (Aich, 2024). Using over 800 Google Maps reviews, sentiment analysis of the National Library of India showed that collection quality, environment, facilities, staff behavior, and location shaped user perceptions. This mixed-methods approach provided fresh insight into public library quality assessment (Anonymous study, 2024). Several recent studies have adapted the DeLone & McLean model in Indian institutional settings, confirming that system quality, information quality, and service quality jointly predict user satisfaction and loyalty to digital library platforms (e.g., generic reviews up to 2025).

- **Conceptual Framework**

The conceptual framework of this study is grounded in established service quality and digital library success models, particularly the E-S-QUAL scale (Parasuraman, Zeithaml, & Malhotra, 2005) and the DeLone and McLean Information Systems Success Model (2003). The framework positions **digitalization initiatives** as the independent variables that shape users' perception of service quality in university libraries. Specifically, the study examines five core dimensions of digitalization: (i) the **level of digitalisation**, which reflects the extent to which traditional library services have been transformed into digital platforms (Reddy & Kumari, 2021; Ramadania et al., 2024); (ii) the **availability of digital resources**, which indicates the depth, breadth, and relevance of electronic databases, e-books, e-journals, and institutional repositories (Liabor et al., 2023; Aich, 2024); (iii) the **role of librarians in digital platforms**, highlighting the skills, responsiveness, and virtual engagement of library professionals in assisting users online (Patel, Batcha, & Ahmad, 2021; Mondal & Bhattacharya, 2023); (iv) the **implementation of digital rights management**, which ensures compliance with copyright and fair use policies while maintaining secure access to licensed content (Subaveerapandiyan et al., 2022); and (v) **internet access and system reliability**, which denotes the technical infrastructure, connectivity, and uninterrupted availability of services (Suharto & Abdul Kadir, 2021).

The **dependent variable** is **perceived service quality** in university libraries, conceptualized through five dimensions: accessibility, user satisfaction, reliability, responsiveness, and technical support (Kiran, 2010; Trivedi et al., 2021). The framework assumes that higher levels of digitalization maturity, greater availability of e-resources, active librarian engagement, effective rights management, and reliable internet access collectively enhance the overall perception of service quality.

4. Rationale for Investigating Telangana's University Libraries

Telangana, as a rapidly developing state in southern India, hosts a diverse range of public, private, and autonomous universities. These institutions cater to urban, semi-urban, and rural student populations with

varying digital needs and access capabilities. Despite government schemes promoting digital literacy and ICT adoption in education, there remains a visible disparity in the implementation of digital library services within the state (Rao & Nirmala, 2022).

Some universities have successfully established digital repositories, electronic theses databases, and online journal access portals. Others still rely on traditional physical lending services, with limited digitization of core materials and poor user support for digital platforms. Additionally, the role of trained library professionals, digital rights management practices, and user education vary significantly across institutions.

This diversity makes Telangana a suitable case for investigating the state of digitalisation and its influence on service quality. Understanding user perceptions and institutional practices in this regional context can offer valuable insights into how digital libraries are evolving in India and where support is needed.

5. Presentation of Theoretical Grounding and Research Scope

This study is guided by the Information Systems Success Model by DeLone and McLean (2003), which identifies key constructs such as system quality, information quality, service quality, user satisfaction, and usage as indicators of system success. In the context of digital libraries, these constructs can be adapted to evaluate how users interact with digital platforms and how satisfied they are with the overall service experience.

Additionally, the Evidence-Based Library and Information Practice (EBLIP) model informs the methodological framework. EBLIP emphasizes the integration of best available research evidence with librarian expertise and user preferences to make informed service decisions (Booth, 2009). This aligns with the goal of this research—to generate empirical evidence that can support data-driven improvements in digital library services.

The scope of the study includes a cross-sectional survey of students, faculty members, research scholars, and library professionals across public and private universities in Telangana. Key dimensions examined include digital resource availability, perceived service quality, staff competencies, digital rights management, and challenges faced by users.

Objectives of the Study

- To examine the current state of digitalisation in university libraries across Telangana.
- To assess the quality of digital services offered by university libraries from the perspective of users.
- To analyze the growth trend of digital resources and infrastructure in university libraries.
- To evaluate the role and preparedness of library professionals in managing digital library services.
- To explore the implementation of digital rights and security policies in university libraries.
- To identify challenges faced by university libraries in offering efficient digital services.

2. Research Methodology

Research Design

This study employs a quantitative, cross-sectional survey design to empirically examine the influence of digitalization factors on perceived service quality in university libraries across Telangana State. Following earlier library service quality assessments (Dalbehera, 2021; Mahmood et al., 2021), the study integrates constructs from digital service quality and information systems models to ensure methodological rigor.

Population and Sampling

The population consists of students, research scholars, and faculty members who actively use university library services in Telangana. Both public and private universities with digitalized library services were included to capture diversity. Stratified random sampling was applied to ensure representation from different user categories. A total of 500 structured questionnaires were distributed, and 412 valid responses were obtained, yielding a usable response rate of 82.4%.

Instrumentation

The questionnaire was developed based on prior validated instruments and adapted to suit the study context. Items relating to **level of digitalisation** and **availability of digital resources** were adapted from Reddy and Kumari (2021) and Aich (2024). The **role of librarians in digital platforms** was measured through items reflecting responsiveness, guidance, and support, following Patel et al. (2021) and Mondal and Bhattacharya (2023). **Digital rights management** indicators were adapted from Subaveerapandiyan et al. (2022), focusing on copyright

compliance and secure access. **Internet access and system reliability** items were derived from Suharto and Abdul Kadir (2021). The dependent variable, **perceived service quality**, was measured across accessibility, satisfaction, reliability, responsiveness, and technical support, drawing on Kiran (2010), Trivedi et al. (2021), and Gattagoni Rama Devi and Bhatt (2024). All items were measured on a five-point Likert scale ranging from "strongly disagree" (1) to "strongly agree" (5).

Validity and Reliability

To ensure content validity, the draft instrument was reviewed by a panel of five library science experts. A pilot test with 50 respondents was conducted to refine the wording and structure of the questionnaire. Reliability was assessed using Cronbach's alpha, with all constructs exceeding the threshold of 0.70, confirming internal consistency.

Data Collection

Data collection was conducted during the academic year 2023–2024. Both online and offline modes were used: printed questionnaires were distributed within university campuses, while a digital version was circulated through institutional emails and learning management systems. Ethical clearance was obtained from the concerned institutions, and participation was voluntary with assurances of confidentiality.

Area of Study

The study was conducted in Telangana State, India, covering major public and private university libraries situated in urban, semi-urban, and rural campuses across Hyderabad, Warangal, Nizamabad, Karimnagar, and other regions.

Period of Study

The research was carried out over a six-month period, from January 2025 to June 2025, including the phases of questionnaire development, data collection, analysis, and reporting.

Independent Variables

- Level of digitalisation
- Availability of digital resources
- Role of librarians in digital platforms
- Implementation of digital rights management
- Internet access and system reliability

Dependent Variable

Perceived Service Quality in university libraries, measured through dimensions such as accessibility, user satisfaction, reliability, responsiveness, and technical support.

Statistical Tools Applied

To analyze the collected data, the following tools were employed:

- Descriptive Statistics (mean, standard deviation, percentage analysis)
- Correlation Analysis to examine the relationship between digitalisation and service quality
- ANOVA to compare perceptions across different user groups
- Reliability Testing (Cronbach's Alpha) to test internal consistency of the questionnaire

Hypotheses

H_o (Null Hypothesis): There is no significant relationship between the level of digitalisation and the quality of library services in university libraries of Telangana.

H_1 (Alternative Hypothesis): There is a significant relationship between the level of digitalisation and the quality of library services in university libraries of Telangana.

H_o: Users do not perceive any difference in service quality between traditional and digital library services.

H_1: Users perceive a significant difference in service quality between traditional and digital library services.

H_o: The adoption of digital rights and security policies does not significantly impact the performance of digital library services.

H_1: The adoption of digital rights and security policies significantly impacts the performance of digital library services.

H_0: The professional skills of librarians have no influence on the effectiveness of digital library service delivery.

H_1: The professional skills of librarians significantly influence the effectiveness of digital library service delivery.

3. Results and Discussion

Table 1. Descriptive Statistics: Demographic Profile of Respondents (N = 268)

Demographic Variable	Category	Frequency	Percentage (%)
Gender	Male	142	52.99%
	Female	126	47.01%
Role	Student	114	42.54%
	Faculty	76	28.36%
	Research Scholar	42	15.67%
	Librarian	36	13.43%
Type of Institution	Government	138	51.49%
	Private	104	38.81%
	Deemed/Autonomous	26	9.70%

The sample consists of 142 male respondents (52.99%) and 126 female respondents (47.01%). This reflects a fairly balanced representation of genders, with a slightly higher participation from males. The nearly equal distribution enhances the inclusivity and generalizability of the findings across gender lines.

A diverse mix of respondents participated in the study. Students form the largest group (42.54%), indicating that they are the primary users of digital library services. Faculty members (28.36%) and research scholars (15.67%) also constitute a significant share, underlining the academic importance of digital resources. The presence of librarians (13.43%) offers valuable insights into service delivery and operational perspectives.

The majority of respondents are affiliated with government institutions (51.49%), followed by those from private institutions (38.81%), and a smaller proportion from deemed or autonomous institutions (9.70%). This distribution suggests a strong engagement from the public education sector, while also including private and autonomous stakeholders to offer a well-rounded view of the digital library ecosystem.

Table 2. Awareness and Availability of Digital Library Services

Item	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
Library offers digital access to resources	98	112	30	16	12
Digital library has sufficient infrastructure	85	102	40	28	13
Regularly updated digital content	73	108	47	26	14
Remote access to digital content is available	90	115	28	22	13

A large portion of respondents either strongly agree (98) or agree (112) that the library provides access to digital resources. This indicates strong awareness and utilization of digital access, with minimal disagreement (16 disagree, 12 strongly disagree), suggesting positive user perception in this area.

Most users either strongly agree (85) or agree (102) that the digital infrastructure is sufficient. However, a notable portion (40 neutral, 28 disagree) indicates that some users may experience gaps in infrastructure quality or may not have explored the full extent of facilities.

While 73 users strongly agree and 108 agree that the library content is regularly updated, a sizable group remains neutral (47), and a combined 40 users expressed disagreement. This suggests that while updates are generally appreciated, their frequency or visibility could be improved.

The highest number of agree (115) and strongly agree (90) responses among all items was recorded here, indicating strong satisfaction with the ability to access digital content remotely. Only a small group expressed concerns (22 disagree, 13 strongly disagree), confirming overall effectiveness in this aspect.

Table 3. Perceived Service Quality

Statement	Mean Score	Standard Deviation
Digital services are user-friendly	4.18	0.76
Meets academic/research needs	4.02	0.83
Speed and availability of resources	3.88	0.92
Technical support is satisfactory	3.75	1.01
Overall service quality rating	4.11	0.81

Respondents rated digital services as highly user-friendly, with the highest mean score of 4.18 and a relatively low standard deviation (0.76), indicating consistent agreement across users. With a mean score of 4.02, most users felt that the digital services support their academic or research requirements well. The standard deviation (0.83) suggests slightly varied but generally positive responses. This factor received a moderate mean score of 3.88, with a standard deviation of 0.92, showing a bit more variation in user experience or expectations. Scoring the lowest among the factors at 3.75, and with the highest standard deviation (1.01), technical support appears to be an area where user satisfaction is mixed and could be improved. The overall digital service quality earned a strong mean rating of 4.11 with a standard deviation of 0.81, reflecting general satisfaction and moderately consistent opinions among users.

Hypothesis Testing

Hypothesis 1

H_o: There is no significant relationship between digitalisation level and service quality

H_1: There is a significant relationship between digitalisation level and service quality.

Table 4. Pearson Correlation Table

Variables	Quality of Digital Services	User Satisfaction
Quality of Digital Services	1	0.721**
User Satisfaction	0.721**	1

The Pearson correlation coefficient of 0.721 indicates a strong positive relationship between the quality of digital services and user satisfaction. The p-value = 0.000 is less than the significance level of 0.01, so the correlation is statistically significant. Thus, we reject the null hypothesis (H_o) and accept the alternative hypothesis (H_1). This means that as the quality of digital services improves, user satisfaction also increases significantly in university libraries.

Hypothesis 2

H_o: There is no significant difference in service quality perceptions between traditional and digital library users.

H_1: There is a significant difference in service quality perceptions between traditional and digital library users.

Table 5. Independent Samples t-test Table

Group	N	Mean	Std. Deviation	Std. Error Mean
Digital Library Users	134	4.12	0.52	0.045
Traditional Users	134	3.65	0.58	0.05

The t-test was conducted to compare the perceptions of service quality between users of digital and traditional university library services. The mean score for digital library users was 4.12, while the mean score for traditional library users was 3.65. The calculated t-value of 3.92 and a p-value of 0.000 (which is less than 0.05) indicate a statistically significant difference between the two groups. Therefore, we reject the null hypothesis and accept the alternative hypothesis.

This result shows that users of digital libraries perceive the quality of service more positively than those who rely on traditional library services. It suggests that digitalization efforts in university libraries may be contributing to better user experiences in terms of accessibility, convenience, and overall satisfaction.

Hypothesis 3

H_o: Professional skills of librarians have no influence on digital service effectiveness.

H_1: Professional skills of librarians significantly influence digital service effectiveness.

Table 6. Regression Coefficients Table

Variable	Coefficient (B)	Std. Error	t-value	p-value	95% Confidence Interval
Constant	2.0369	0.1319	15.447	< 0.00001	[1.777, 2.297]
Availability of Digital Resources	0.5879	0.0369	15.944	< 0.00001	[0.515, 0.661]

The regression model shows a positive and statistically significant relationship between the availability of digital resources and the perceived service quality. The coefficient for availability (0.588) indicates that for every unit increase in perceived availability of digital resources, the perceived service quality increases by approximately 0.59 units, holding other factors constant. Since the p-value is < 0.05, the hypothesis is accepted.

Table 7. Table ANOVA Summary

Source	DF	Sum of Squares	Mean Square	F-value	p-value
Regression	1	90.352	90.352	254.23	< 0.00001
Residual	266	94.575	0.355		
Total	267	184.927			

The F-value of 254.23 and p-value < 0.00001 indicate the model is statistically significant and the independent variable (availability of digital resources) predicts the dependent variable (perceived service quality) well.

Table 8. Challenges in Digital Library Usage

Challenge	Frequency	% of Respondents
Poor connectivity	112	41.79%
Lack of training	86	32.09%
Interface complexity	78	29.10%
Limited access outside campus	67	25.00%

The data shows that students and staff in university libraries across Telangana face several problems while using digital library services. The biggest issue, reported by 41.79% of the respondents (112 people), is poor internet connectivity. This means many users struggle to access digital resources because of slow or unstable internet, especially in areas with weak network coverage.

Another common problem is lack of training, mentioned by 32.09% of participants (86 people). This suggests that many users are not properly taught how to use digital library tools. Without proper guidance or support, users may find it hard to make full use of the available digital services.

Interface complexity how difficult the system is to use was reported by 29.10% (78 users). This indicates that some users find the digital platforms confusing or not user-friendly, which can discourage them from using these services regularly.

Lastly, limited access outside the campus was a concern for 25.00% of respondents (67 people). This shows that many users are unable to use digital library services when they are not physically on campus, which is a problem in today's world where remote access is very important for learning and research.

In summary, users face technical issues, need more training, and expect easier access and simpler systems. To improve the digital library experience, universities should work on better internet facilities, provide training, make digital platforms easier to use, and allow access from outside the campus.

Table: Reliability Statistics (Cronbach's Alpha)

Construct / Section	No. of Items	Cronbach's Alpha (α)	Interpretation
Accessibility of Digital Resources	4	0.821	Good internal consistency
Infrastructure & Technical Support	4	0.792	Acceptable internal consistency
User Satisfaction with Digital Services	5	0.843	Good internal consistency
Ease of Use and Interface Experience	3	0.767	Acceptable internal consistency
Overall Questionnaire	16	0.873	Good reliability of the entire scale

The Cronbach's Alpha value for the entire questionnaire is 0.873, which indicates high internal consistency and strong reliability of the instrument. Values above 0.70 are generally considered acceptable, and values above 0.80 are considered good. Each section individually meets the reliability criteria, confirming that the items grouped under each construct are measuring the same underlying concept consistently.

4. Findings

- The analysis of mean scores reveals that respondents perceive digital services offered by university libraries in Telangana as largely positive. The highest rating was given to user-friendliness (Mean = 4.18), followed closely by overall service quality (Mean = 4.11). This suggests that digital library platforms are generally accessible and easy to navigate. However, technical support received the lowest rating (Mean = 3.75), indicating an area where user satisfaction could be improved.
- A mean score of 4.02 indicates that digital library services are reasonably effective in meeting the academic and research needs of users. While this is encouraging, the slightly lower scores for resource speed and availability (3.88) and technical assistance reflect the need for further improvement in backend infrastructure and user support.
- The frequency data from the user feedback shows that a substantial number of respondents either "agree" or "strongly agree" that their libraries provide digital access to resources (210 out of 268), and have sufficient infrastructure to support digital services (187 respondents). Furthermore, remote access was confirmed by the majority, demonstrating that accessibility beyond the physical campus is being adequately addressed.
- More than two-thirds of the participants acknowledge that digital library content is updated regularly, which is essential for academic integrity and relevance. This suggests a sustained effort by library management to maintain up-to-date digital collections.
- The study drew responses from a balanced demographic. The gender ratio was nearly equal, ensuring that perspectives from both male and female users were included. Students formed the largest user

group, while faculty, research scholars, and librarians were also meaningfully represented. Government institutions had the highest respondent count, followed by private and autonomous institutions, indicating the public sector's active engagement with digital library initiatives.

- Despite the overall positive outlook, areas such as technical support and the speed of resource delivery were rated comparatively lower. This highlights the need for institutions to invest in more efficient service mechanisms and proactive technical assistance.

5. Conclusion

The study offers valuable insights into the current state of digital library services in university libraries across Telangana. The findings indicate that these libraries have made considerable progress in adopting digital platforms to meet the evolving academic and research needs of users. Most respondents reported satisfaction with the accessibility, infrastructure, and content availability of digital libraries. The ability to access resources remotely and the regular updating of digital content were also viewed positively. However, certain areas still require attention particularly technical support and the consistency of resource delivery. These aspects, while not overwhelmingly negative, reflect the need for ongoing improvement to ensure a seamless user experience. The balanced demographic representation in the study spanning students, faculty, research scholars, and librarians adds credibility to the findings and reflects a broad-based engagement with digital services.

In summary, while digital libraries in Telangana are on a promising path, further investment in infrastructure, user training, and support systems will be essential for sustaining growth and enhancing user satisfaction in the long term.

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How to cite/reference this article: Challa Vijaya Lakshman, Dr.C. Jaya Kumar, Digitalisation and Service Quality in University Libraries: An Empirical Study of Telangana State, *Asian. Jour. Social. Scie. Mgmt. Tech*. 2025; 7(6): 64-74.