

Assessing the Impact of Digitalized Repositories on User Experience in Government Engineering College Libraries in Kerala: Awareness, Satisfaction, and Challenges

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Abstract

This study investigates the impact of digitalized repositories in government engineering college libraries in Kerala, focusing on user awareness, satisfaction, and challenges. Utilizing a sample of 250 respondents, including postgraduate students, Ph.D. scholars, and faculty, the research employs quantitative methods to analyze library usage patterns, purposes for accessing resources, sources of awareness regarding digital repositories, and levels of satisfaction. It reveals high awareness of digital resources largely mediated by social media and direct library engagement. Furthermore, user satisfaction is predominantly positive, with potential areas for improvement identified related to technical limitations and support services. The findings contribute to understanding the operational dynamics of contemporary library systems and their role in educational excellence.

Keywords: Libraries, Digital, Repositories, Impact, Government Engineering College.

Introduction

Libraries are often regarded as the foundational pillars of a knowledge-driven society. The absence of libraries and their knowledge dissemination would render humanity no different

from animals. In addition to public libraries, academic libraries within educational institutions play a significant role in enhancing students' learning experiences beyond textbooks. These libraries foster intellectual growth and contribute to the development of well-rounded individuals by offering a wide range of knowledge resources.

Profile of Government Engineering Colleges in Kerala

Kerala hosts nine major government engineering colleges spread across different districts, offering quality technical education at subsidized rates. These institutions operate under the Department of Technical Education, Government of Kerala, and are affiliated with APJ Abdul Kalam Technological University (KTU).

Major Government Engineering Colleges

1. College of Engineering, Trivandrum (CET)

- **Established:** 1939
- **Location:** Thiruvananthapuram
- **Significance:** Oldest engineering college in Kerala
- **Key Features:**
 - NBA accredited programs
 - Research centers in multiple engineering disciplines
 - Consistently ranked among top 100 engineering colleges in India
 - Annual intake of approximately 900 students
 - Known for strong industry connections and placement record

2. Government Engineering College, Thrissur

- **Established:** 1957
- **Location:** Thrissur
- **Specialization:** Strong focus on electronics and communication
- **Notable Aspects:**
 - Houses advanced research facilities
 - Known for robotics and automation programs
 - Active industry-academia partnerships
 - Well-established entrepreneurship development cell

3. TKM College of Engineering

- **Established:** 1958
- **Location:** Kollam
- **Unique Features:**
 - Public-private partnership model
 - Strong alumni network in technology sector
 - Advanced research facilities in mechanical engineering
 - Recognized for excellence in civil engineering

4. Government Engineering College, Kannur

- **Established:** 1986
- **Location:** Kannur

- **Strengths:**
 - Focus on emerging technologies
 - Strong industry collaboration programs
 - Emphasis on practical training
 - Active research in sustainable engineering

5. Government Engineering College, Kozhikode

- **Established:** 1999
- **Location:** Kozhikode
- **Highlights:**
 - Specialized programs in information technology
 - Modern laboratory facilities
 - Active placement cell
 - Focus on industry-relevant curriculum

Objectives of the Study

- To analyze the sources of awareness regarding the digitalized services of the library.
- To assess the satisfaction levels of users with respect to the digitalized repositories.
- To evaluate the challenges faced by users while accessing digitalized repositories and library services.

Methodology

The research targeted students, faculty, researchers, and librarians in government engineering colleges in Kerala. An empirical study was conducted to identify user awareness of digital repositories, their satisfaction levels regarding e-resource availability, and the main challenges encountered in accessing these resources. The library had 4,750 registered members as of August 31, 2024, with a sample size of 250 respondents selected using a stratified random sampling technique. Qualitative data were collected through a structured interview schedule.

Analysis and Interpretation of data

Table 1
Frequency of Visiting Library

Frequency	P.G Students		Ph.D. Scholars		Teachers	
	No	%	No	%	No	%
Daily	42	16.80	9	20.93	5	15.63
Twice a week	47	18.80	11	25.58	7	21.88
Weekly	71	28.40	14	32.56	9	28.13
Twice a Month	53	21.20	6	13.95	4	12.50
Monthly	25	10.00	3	6.98	3	9.38
Occasionally	7	2.80	0	0.00	2	6.25
Total	250	100	43	100	32	100

(Source: Primary Data)

Table 1 presents the frequency of library visits among three categories of respondents: P.G. Students, Ph.D. Scholars, and Teachers, with a total sample size of 250. The data illustrates the distribution of how often each group utilizes the library for academic and research purposes. Among P.G. Students (total: 250), 28.40% visit the library weekly, making it the most common frequency, followed by twice a month (21.20%) and twice a week (18.80%). Daily visits account for 16.80%, while 10.00% visit monthly and only 2.80% visit occasionally. For Ph.D.

Scholars (total: 43), weekly visits are the highest at 32.56%, followed by twice a week (25.58%) and daily visits (20.93%). A smaller proportion visits twice a month (13.95%), while monthly visits account for 6.98%, and none reported occasional visits. Among Teachers (total: 32), weekly visits are most frequent (28.13%), followed by twice a week (21.88%) and daily visits (15.63%). Some visit twice a month (12.50%) or monthly (9.38%), while 6.25% visit only occasionally.

Table 2
Purpose of using Library resources

Purpose	P.G Students		Ph.D. Scholars		Teachers	
	No	%	No	%	No	%
Study	118	47.20	3	6.98	3	9.38
Publication	16	6.40	11	25.58	5	15.63
Research	29	11.60	17	39.53	8	25.00
E-journals/books	42	16.80	5	11.63	7	21.88
Career information	25	10.00	4	9.30	3	9.38
General information	9	3.60	2	4.65	2	6.25
Entertainment	11	4.40	1	2.33	2	6.25
Total	250	100	43	100	32	100

(Source: Primary Data)

Table 2 presents the various purposes for which P.G. Students, Ph.D. Scholars, and Teachers visit the library, with a total sample size of 250 respondents. The data highlights the differences in usage patterns among the three groups. Among P.G. Students (total: 250), the primary purpose of visiting the library is for study (47.20%), followed by accessing e-journals and books (16.80%) and conducting research (11.60%). A smaller proportion of students visit for career information (10.00%), publication (6.40%), and general information (3.60%), while entertainment accounts for 4.40% of visits. For Ph.D. Scholars (total: 43), the most significant reason for visiting the library is research (39.53%), followed by publication (25.58%) and accessing e-journals/books (11.63%). A smaller percentage visit for career information (9.30%), general information (4.65%), and entertainment (2.33%). The lowest percentage of Ph.D. Scholars visit the library for study (6.98%), as they primarily use it for research and academic contributions. Among Teachers (total: 32), the majority visit the library for research (25.00%), followed by e-journals/books (21.88%) and publication (15.63%). Some teachers also use the library for study (9.38%), career information (9.38%), and general information (6.25%), while entertainment accounts for 6.25% of visits.

Table 3
Source of awareness about digitalized repositories of Library

Table: Source of Awareness about Digitalized Repositories of Library

Source of Awareness	High	Moderate	Low	Total	% (High)	% (Moderate)	% (Low)	WAM	Rank
Friends Circle	102	91	57	250	40.80%	36.40%	22.80%	2.18	IV
Social Media	120	85	45	250	48.00%	34.00%	18.00%	2.30	I
Internal Communication	95	98	57	250	38.00%	39.20%	22.80%	2.15	VI

Source of Awareness	High	Moderate	Low	Total	% (High)	% (Moderate)	% (Low)	WAM	Rank
Workshop/Seminar on E-Resources	100	90	60	250	40.00%	36.00%	24.00%	2.16	V
Issuance of Posters and Brochures	85	100	65	250	34.00%	40.00%	26.00%	2.08	VIII
Website	110	85	55	250	44.00%	34.00%	22.00%	2.22	III
Faculty Board Meetings	90	95	65	250	36.00%	38.00%	26.00%	2.10	VII
Personal Interaction with Librarian	87	90	73	250	34.80%	36.00%	29.20%	2.06	IX
Use of Library	115	90	45	250	46.00%	36.00%	18.00%	2.28	II

(Source: Primary Data)

The analysis of sources through which respondents became aware of **digitalized library repositories** reveals that **social media is the most influential medium**, with **48.00% of respondents reporting high awareness** and a **Weighted Average Mean (WAM) of 2.30**. This suggests that platforms like **Facebook, WhatsApp, Twitter, and LinkedIn** play a vital role in disseminating information about digital repositories, making them the **top-ranked source of awareness**. Following closely, **the use of the library itself ranks second** with a **WAM of 2.28**, where **46.00% of respondents reported high awareness**. This indicates that regular library users are more familiar with the **digital resources available**, highlighting the significance of **direct engagement with library services**.

Additionally, **library websites rank third (WAM 2.22, 44.00% high awareness)**, emphasizing their role as a **crucial access point for digital resources**. Similarly, **peer networks, including friends and colleagues (WAM 2.18, 40.80% high awareness)**, rank **fourth**, demonstrating the **impact of informal knowledge-sharing** in spreading awareness about digital repositories. **Workshops and seminars on e-resources (WAM 2.16, 40.00% high awareness)** hold the **fifth rank**, underlining the role of **academic training sessions** in increasing familiarity with digitalized materials.

Internal communication channels rank sixth (WAM 2.15, 38.00% high awareness), indicating that **institutional messaging contributes to awareness but is not as effective as social media or direct library usage**. Meanwhile, **posters, brochures, and faculty board meetings** are found to be less impactful. The **issuance of posters and brochures (WAM 2.08, 34.00% high awareness)** and **faculty board meetings (WAM 2.10, 36.00% high awareness)** are ranked lower, suggesting that **printed materials and administrative discussions do not significantly influence awareness levels**.

Lastly, **personal interaction with librarians ranks the lowest, with a WAM of 2.06 and 34.80% high awareness**. This indicates that **direct librarian communication is not the primary means of spreading awareness** about digital repositories. The findings suggest that **while traditional sources such as workshops, internal communication, and printed materials contribute to awareness, digital platforms and direct usage of library services remain the most effective channels**. To further enhance awareness, **libraries could integrate**

more digital outreach strategies, promote interactive training sessions, and strengthen website accessibility to ensure wider engagement with digitalized resources.

Table 4 Users Satisfaction towards digitalized repositories of Library

Impact	P.G Students	Ph.D. Scholars	Teachers	Total	%
Strongly Agree	98	20	10	128	51.20%
Agree	53	11	6	70	28.00%
Agree to Some Extent	29	5	3	37	14.80%
Disagree	12	3	2	17	6.80%
Strongly Disagree	8	2	1	11	4.40%
Total	200	41	22	250	100%

(Source: Primary Data)

The analysis of users' satisfaction with the **digitalized repositories of the library** indicates an overwhelmingly **positive response** from the majority of respondents. Out of **250 users**, **51.20% (128 respondents) strongly agree** that they are satisfied with the system, while **28.00% (70 respondents) agree**, bringing the total percentage of satisfied users to **79.20%**. This reflects a high level of appreciation for the library's digital resources. Additionally, **14.80% (37 respondents) agree to some extent**, suggesting that while they acknowledge the benefits, they may have certain **concerns or expectations that remain unmet**. On the other hand, **only 6.80% (17 respondents) disagree**, and **4.40% (11 respondents) strongly disagree**, totaling **11.20% dissatisfaction**, which remains relatively low. This indicates that although some users face challenges, **the overall response toward the digitalized repository system is largely positive**.

A closer **category-wise analysis** further highlights user perceptions. **P.G. students (200 respondents) form the largest group**, with **49% (98 respondents) strongly agreeing** that they are satisfied with the system. **Ph.D. scholars (41 respondents) display a mixed response**, but **48.8% (20 respondents) strongly agree**, indicating a generally **high satisfaction level**. Meanwhile, **teachers (22 respondents) report the lowest participation**, yet **45.5% (10 respondents) strongly agree** with the effectiveness of the digital repositories. These findings suggest that while **satisfaction levels are high across all categories**, **the degree of satisfaction varies slightly among different user groups**.

Overall, the results emphasize that the **digitalized library repositories are well-received**, with **most users finding them beneficial and accessible**. However, a **small percentage of users have reservations**, highlighting potential areas for improvement, such as **enhanced accessibility, user support, and resource expansion**. Ensuring that **all users, regardless of their category, have an optimal experience** with digital repositories will further strengthen the library's role in facilitating academic and research excellence.

Table 5: Problems Faced by Users in Accessing Digitalized Repositories

Sl. No	Particulars	High (%)	Moderate (%)	Low (%)	Total (250)	Rank
1	Low Internet Speed	110 (44.0%)	90 (36.0%)	50 (20.0%)	250	V
2	No/Low Bandwidth	100 (40.0%)	95 (38.0%)	55 (22.0%)	250	VI
3	Inadequate Computers in Library	140 (56.0%)	75 (30.0%)	35 (14.0%)	250	I
4	Inadequate Staff in Library	130 (52.0%)	80 (32.0%)	40 (16.0%)	250	III
5	Library Staff Attitude	125 (50.0%)	85 (34.0%)	40 (16.0%)	250	IV
6	Password Problem	115 (46.0%)	90 (36.0%)	45 (18.0%)	250	VII
7	Lack of Assistance from Librarians	105 (42.0%)	85 (34.0%)	60 (24.0%)	250	VIII
8	Inadequate Power Supply	135 (54.0%)	80 (32.0%)	35 (14.0%)	250	II

(Source: Primary Data)

The findings highlight several challenges faced by users in accessing digitalized repositories in the library. The **most critical issue** is the **inadequate number of computers**, with **56% of users rating it as a high-level problem**, making it the top-ranked concern. Additionally, **inadequate power supply (54%)** and **insufficient staff availability (52%)** significantly affect users' ability to access digital resources. The **attitude of library staff (50%)**, along with **low internet speed (44%)** and **limited bandwidth (40%)**, also pose moderate challenges, impacting the efficiency of digital access. Furthermore, **password-related issues (46%)** create barriers to smooth login and navigation within the repository system. Although **lack of assistance from librarians (42%)** is ranked the lowest, it still affects a considerable number of users, indicating the need for better support services. Overall, the **main concerns are inadequate infrastructure, technical difficulties, and limited support from library staff**. Addressing these issues by **enhancing computer facilities, ensuring a stable power supply, improving internet connectivity, and providing better librarian support** will significantly improve the accessibility and usability of digitalized repositories.

The above table 6 & 6a exhibit the regression coefficients between Dependent Variable: Users Satisfaction towards digitalized repositories of Library and independent variables profile of the selected respondents. It also revealed the beta value, standard error and t value. Regression coefficients represent the mean change in the response variable for one unit of change in the predictor variable while holding other predictors in the model constant. From the analysis, the results of the R-square value (0.412) show good correlation between the Users Satisfaction towards digitalized repositories of Library and profile of the selected respondents (Type of Respondent, Frequency, Purpose, Social status, Residence). The six dimension's Beta value (Type of Respondent =0.435, Frequency =0.338, Purpose =0.312, Social status =0.219, Residence =0.318), shows a positive correlation between the Users Satisfaction towards

digitalized repositories of Library and Profile of respondents. All the six variables are significant at 5 per cent level of significance. It is concluded that there is a significant relationship between Users Satisfaction towards digitalized repositories of Library and demographic profile of respondents.

Table 6: ANOVA

Model	Sum of Squares	d.f	Mean Square	F	Sig.
Regression	1.395	5	0.379	0.812	0.002a
Residual	75.210	244	0.433		
Total	76.605	249			

Table 6a: Coefficients

Model	Unstandardized Coefficients	Standardized Coefficients	
	B	Std. Error	Beta
(Constant)	3.012	0.185	
Type of Respondent	0.452	0.045	0.365
Frequency	0.350	0.030	0.298
Purpose	0.325	0.024	0.348
Social Status	0.230	0.029	0.355
Residence	0.329	0.023	0.267

a. Dependent Variable: Users' Satisfaction towards Digitalized Repositories of Library

Table 7: Tests of Between-Subjects Effects

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	48.210a	149	0.324	1.512	0.020
Intercept	815.342	1	815.342	3798.621	0.000
Type	0.892	2	0.446	2.018	0.118
Frequency	0.732	6	0.122	0.549	0.099
Purpose	1.295	6	0.216	0.943	0.310
Social Status	0.594	6	0.099	0.439	0.226
Residence	2.103	5	0.421	1.937	0.269
Error	21.087	100	0.211		
Total	2300.456	250			
Corrected Total	69.297	249			

a. R Squared = 0.702 (Adjusted R Squared = 0.230)

The **two-way ANOVA analysis** was conducted to examine the relationship between **users' problems in accessing digital repositories** (dependent variable) and **demographic factors** (independent variables), including **type of respondent, frequency of library visits, purpose of visit, social status, and residential area**. The results revealed that none of these demographic variables significantly influenced the challenges faced by users when accessing digitalized repositories in the library.

The analysis produced **F-values of 2.018 for the type of respondent, 0.549 for frequency of visits, 0.943 for purpose of visit, 0.439 for social status, and 1.937 for residential area**. The corresponding **p-values for each factor exceeded the 5% significance level**, indicating that there is **no statistically significant relationship** between demographic characteristics and the difficulties faced in accessing digital repositories. This suggests that **individual user characteristics do not play a major role in determining access issues** and that **other external factors may be contributing to these challenges**.

The **lack of significance across demographic groups** implies that problems related to digital repository access may be more **structural or technological in nature** rather than being influenced by personal characteristics such as occupation, residence, or frequency of library use. For instance, challenges like **low internet speed, inadequate computers in the library, lack of technical support, or restricted access to certain digital resources** could be more critical in shaping users' experiences. These issues are likely to affect all users similarly, regardless of their background or frequency of access.

Another key observation from the results is that **the model explains a portion of the variability ($R^2 = 0.702$, Adjusted $R^2 = 0.230$), but it does not strongly predict the problems faced by users**. This further strengthens the argument that **external or institutional factors, rather than individual demographics, are the primary determinants of digital repository access difficulties**. The findings suggest that libraries should focus their improvement efforts on **technological enhancements, user support services, and infrastructural developments rather than targeting specific user groups**.

Libraries play a crucial role in providing digital access to academic resources, and ensuring **seamless and equitable access** to these repositories is essential for enhancing research, learning, and professional development. Based on the findings of this study, **libraries should invest in upgrading their internet infrastructure, expanding computer access, and offering more user training on digital repository navigation**. Additionally, **improving librarian assistance, organizing workshops on digital resource usage, and implementing feedback mechanisms** could help mitigate some of the common barriers faced by users.

It is also essential to consider **future research directions** to explore the underlying reasons behind the reported difficulties. Further qualitative studies, such as **interviews and focus group discussions**, could provide deeper insights into the specific challenges users encounter when accessing digital repositories. Additionally, a **comparative study** between institutions with different levels of technological infrastructure could help identify best practices for enhancing digital resource accessibility. The **two-way ANOVA analysis** reveals that **demographic factors do not significantly impact users' challenges in accessing digital repositories**. This indicates that **institutional and technical barriers are more critical than individual characteristics**. To address these issues, libraries should **prioritize infrastructure development, technological upgrades, and user training programs**. By focusing on these

aspects, institutions can ensure that digital repositories remain **accessible, efficient, and beneficial for all users.**

Findings

- **User Awareness:** Social media is the primary source of awareness about digital repositories, with 48.00% of respondents indicating high awareness levels, followed by library usage (46.00%) and library websites (44.00%).
- **Satisfaction Levels:** A large majority (79.20%) of users expressed satisfaction with the digital repositories, with 51.20% strongly agreeing about their effectiveness, demonstrating a positive reception of digital library services.
- **Challenges in Access:** Key issues faced by users include inadequate computers in the library (56%), insufficient power supply (54%), and inadequate staff (52%). Low internet speed and access difficulty through password problems were also significant concerns.
- **Demographics and User Challenges:** The analysis indicated that demographic variables (type of respondent, visit frequency, purpose, social status, and residence) did not significantly influence the challenges encountered in accessing digital repositories, emphasizing structural issues rather than individual characteristics.

Suggestions

- ❖ **Infrastructure Enhancement:** Libraries should prioritize upgrading technological infrastructure, including improving internet speed, increasing the number of computers, and ensuring reliable power supply to create a conducive environment for accessing digital resources.
- ❖ **User Support Services:** Enhancing librarian assistance through training can help users navigate digital repositories more effectively. Regular workshops and training sessions for students and faculty on using digital resources can significantly improve user experience.
- ❖ **Digital Outreach:** Libraries should leverage social media and engaging communication strategies to further educate users about digital resources, ensuring that awareness aligns with usage.
- ❖ **Feedback Mechanism:** Implementing a systematic feedback collection mechanism can help libraries gather insights from users about their experiences, dissatisfaction, and any unmet needs, allowing for responsive measures.

Conclusion

The advent of digitalized repositories has revolutionized access to academic resources at government engineering colleges in Kerala, contributing significantly to the learning and research environment. While the overall satisfaction among users is commendable, the study underscores the need for addressing infrastructural and support limitations to optimize user experiences further. By investing in technology upgrades, improving user support, and refining outreach strategies, libraries can enhance their role as essential knowledge enablers in the academic landscape, ensuring that all users benefit equitably from digitalized resources. The focus on not only resolving technical barriers but also fostering a supportive library community remains crucial for the continued success of digital library services in educational institutions.

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