

ACCESS AND UTILISATION OF ELECTRONIC INFORMATION RESOURCES OF IIT LIBRARIES: AN EMPIRICAL STUDY

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ABSTRACT

The present study examines the access and utilisation of electronic information resources among users of selected IIT libraries in South India. The study aims to identify the patterns of usage, types of e-resources accessed, purposes of use, perceived benefits, and challenges faced by users while accessing electronic resources. A descriptive survey method was adopted, and data were collected from 321 respondents comprising students, research scholars, and faculty members through a structured questionnaire. The findings reveal that e-journals, e-books, and full-text databases are the most preferred electronic resources among users. ScienceDirect, IEEE, Springer, and ACM emerged as the most frequently used subscribed databases. The study further indicates that respondents primarily use e-resources for research, study, assignment preparation, and staying updated with recent developments. Time-saving, easy accessibility, availability of up-to-date information, and 24×7 access were identified as major benefits. However, challenges such as internet connectivity issues, limited awareness, and technical difficulties continue to affect the effective utilisation of e-resources.

Keywords: Electronic Information Resources, E-Resources, Academic Libraries, IIT Libraries, Library Users, Digital Resources, Information Access, South India.

1. INTRODUCTION

The rapid advancement of Information and Communication Technology (ICT) has significantly transformed the functioning of academic libraries across the world. Traditional print-based library collections are increasingly being replaced or supplemented by electronic information resources (e-resources), such as e-journals, e-books, online databases, institutional repositories, and digital reference sources. These resources have become indispensable in supporting teaching, learning, research, and scholarly communication in higher education institutions. The integration of digital technologies has enabled academic libraries to provide seamless and round-the-clock access to scholarly information, allowing users to retrieve relevant information anytime and from anywhere (Bentil et al., 2021). The growing dependence on e-resources has altered the information-seeking behavior of users in academic environments. Compared to traditional print resources, electronic resources offer greater convenience, faster retrieval of information, advanced search functionalities, portability, and access to updated scholarly content. As a result, students, research scholars, and faculty members increasingly prefer electronic formats for academic and research purposes (Akuffo & Budu, 2019). Furthermore, previous studies have reported that effective utilization of e-resources positively influences academic performance, research productivity, and knowledge enhancement among users (Daramola, 2022).

In technology-oriented institutions such as the Indian Institutes of Information Technology (IIITs), electronic information resources play a crucial role in facilitating academic excellence and research innovation. IIITs emphasize advanced technical education, interdisciplinary research, and innovation-driven learning, which require continuous access to current and high-quality scholarly information. Access to specialized databases and digital platforms such as IEEE Xplore, ScienceDirect, SpringerLink, ACM Digital Library, and other online resources strengthens the research and learning capabilities of users in these institutions. Electronic resources also support collaborative learning, remote access, and rapid dissemination of scientific knowledge, thereby contributing significantly to the academic ecosystem of IIITs. Despite the numerous benefits associated with electronic information resources, users often encounter several challenges in accessing and utilizing them effectively. Problems such as slow internet connectivity, limited access to subscribed databases, lack of technical skills, compatibility issues, information overload, and insufficient awareness regarding available resources hinder the optimal utilization of e-resources in academic institutions (Subaveerapandiyam et al., 2022). Additionally, factors such as copyright restrictions, authentication barriers, and inadequate user training programmes further affect the effective use of digital resources.

The pattern of e-resource usage also varies among different categories of users, including undergraduate students, postgraduate students, research scholars, and faculty members. Differences in academic requirements, research activities, digital literacy, and frequency of access influence the way users interact with electronic resources. Understanding these variations is essential for improving library services, enhancing user satisfaction, and ensuring effective allocation of institutional resources. Empirical studies on user behavior, purpose of use, and frequency of access emphasize the importance of awareness programmes and user education initiatives to maximize the effective utilization of e-resources (Patel et al., 2021). In recent years, the digitalization initiatives undertaken through institutional subscriptions, library consortia, and national programmes have accelerated the adoption of electronic resources in Indian academic institutions. However, disparities in access, awareness, and effective utilization continue to exist among users and institutions. Therefore, there is a growing need for empirical investigations that examine the accessibility, usage patterns, perceived benefits, and challenges associated with electronic information resources in specific academic environments.

Against this background, the present study focuses on the access and use of electronic information resources among IIIT library users in South India. The study aims to examine the extent of e-resource usage, identify the benefits derived by users, and explore the challenges faced in accessing and utilizing these resources effectively. The findings of the study are expected to provide valuable insights for librarians, policymakers, and academic administrators in enhancing e-resource services, improving digital library infrastructure, and promoting effective utilization of electronic information resources in higher education institutions.

2. REVIEW OF LITERATURE

Electronic Information Resources (EIRs) have become an integral component of academic libraries, supporting teaching, learning, and research activities in higher education institutions. Several studies conducted across different academic environments have examined the awareness, accessibility, utilization patterns, benefits, and challenges associated with electronic resources.

Kuri and Maranna (2017) observed that the majority of users were aware of electronic resources and preferred them because of their accessibility and user-friendly nature. However, the study identified barriers such as inadequate awareness of available databases and poor search skills, which limited effective utilization. The authors emphasized the need for user training and awareness programmes to improve the optimal use of e-resources. Similarly, Hossaini (2017) reported that lack of awareness, high subscription costs, and limited training opportunities negatively affected the effective use of electronic information resources. The study highlighted that awareness, accessibility, and user education are important determinants influencing the successful utilization of electronic resources among students and researchers.

Malhotra and Sharma (2019) examined the use of electronic resources among law students and found that most respondents were familiar with legal databases such as SCC Online, Manupatra, and HeinOnline. These databases were extensively used for academic and research purposes. However, issues including inadequate training, poor internet connectivity, and expensive subscription costs restricted effective usage. The study recommended the organization of orientation programmes and improvement of digital infrastructure to enhance e-resource utilization. Soni et al. (2020) revealed that users were highly aware of library services and increasingly preferred electronic resources over print materials. The study found that electronic journals, e-books, and the DRDO E-Journals Consortium were frequently used for accessing full-text scholarly articles and staying updated with recent developments in their respective fields. The findings indicated a positive attitude among users toward electronic information resources and highlighted their growing significance in academic and research environments.

Bentil, Liew, and Chawner (2022) investigated the use of electronic information resources in academic libraries in Ghana using a mixed-method research design. The study involved interviews with library staff and consortium executives. The findings revealed that adequate funding, user training, evaluation of resource usage, and demonstration of the value of e-resources significantly influenced their effective utilization. The study stressed the importance of institutional support and systematic evaluation for improving e-resource services. Mane and Subaveerapandiyan (2022) found that a large majority of students were aware of electronic resources, with many accessing them through institutional websites. E-books, subject presentations, and legal databases were commonly used for academic learning and research activities. Despite high awareness levels, the study reported challenges such as inadequate technical support, lack of assistance, limited time, and insufficient library guidance. The researchers emphasized the need for information literacy programmes, institutional support, and increased funding for database subscriptions.

Jaganbabu et al. (2023) reported that faculty members possessed considerable awareness regarding various electronic information resources and actively utilized them for teaching, research, and academic development. The study highlighted that awareness, accessibility, and perceived usefulness significantly influenced the effective utilization of electronic resources among users in professional educational institutions. Adekola and Omekwu (2023) examined users' perceptions and utilization of library resources and services. The study found that students extensively relied on electronic resources, online legal platforms, databases, repositories, and scholarly literature for academic and research purposes. Significant differences were observed in users' perceptions of library services across institutions and demographic groups. The findings demonstrated the increasing dependence of users on digital information platforms in academic environments.

More recently, Naik and Kuri (2025) studied the usage patterns of electronic information resources in law college libraries. The study observed that although open-access resources improved accessibility and inclusiveness, commercial databases such as SCC Online and Manupatra offered greater authority, comprehensiveness, and reliability. The authors further noted that subscription costs, interface complexity, and inadequate user training continued to affect the effective utilization of electronic legal resources. The review of literature indicates that electronic information resources play a vital role in enhancing academic and research activities across higher education institutions. Most studies reported high levels of awareness and positive attitudes toward e-resources among users. However, challenges such as inadequate training, poor internet connectivity, limited awareness, subscription costs, technical difficulties, and insufficient institutional support continue to hinder their effective utilization. The literature also reveals limited studies specifically focusing on IIT library users in South India. Therefore, the present study attempts to fill this research gap by examining the access, usage patterns, benefits, and challenges associated with electronic information resources among IIT library users in South India.

3. OBJECTIVES

- To examine the accessibility and patterns of use of electronic information resources among library users of IITs in South India.
- To identify the types and extent of use of e-resources by users.
- To analyse the purposes for which e-resources are utilized in academic activities.
- To evaluate the perceived benefits of e-resources and their impact on academic and research activities.
- To identify the problems faced by users in accessing and utilizing e-resources.

4. SCOPE AND METHODOLOGY

The present study focuses on examining the access, use, benefits, and challenges of electronic information resources (e-resources) among library users of selected Indian Institutes of Information Technology (IITs) in South India. The study covers key institutions including IIT-Bangalore, IIT-Hyderabad, IIT-Dharwad, IIT-Tiruchirappalli, IIT-Raichur, IIT-Kurnool, IIT-Kottayam, and IIT-Kancheepuram. The scope of the study is confined to IIT users of South India, including students, faculty members, and research scholars, as well as students who are actively using library resources. The study is confined to electronic information resources available through institutional libraries.

The study adopts a descriptive survey research design to analyze the patterns of access and usage of e-resources and to understand user perceptions regarding their benefits and challenges. A total of 321 respondents participated in the study, and data were gathered through a structured questionnaire designed to capture information related to demographic details, usage patterns, types of e-resources, subscribed resources, purposes of use, benefits derived, and problems faced while accessing e-resources. Data collection was carried out through both online and offline modes to ensure wider participation. The collected data were analyzed using descriptive statistical techniques such as frequency, percentage, mean, and standard deviation. The analysis was performed using statistical tools like SPSS and MS Excel.

5. DATA ANALYSIS AND INTERPRETATION

Table 1. Distribution of Respondents by Institution

Institute	Frequency	Percentage
IIT-Bangalore	54	16.82
IIT-Hyderabad	49	15.26
IIT-Dharwad	45	14.02
IIT-Tirchy	42	13.08
IIT-Raichur	39	12.15
IIT-Kurnool	37	11.53
IIT-Kottayam	28	8.72
IIT-Kanchi	27	8.41
Total	321	100.00

Table 1 indicates the distribution of respondents across the selected IIT institutions, indicating that the study achieved balanced representation from all participating institutions. Among the total 321 respondents, the highest number of participants belonged to IIT-Bangalore with 54 respondents (16.82%), followed by IIT-Hyderabad with 49 respondents (15.26%) and IIT-Dharwad with 45 respondents (14.02%). IIT-Tirchy contributed 42 respondents (13.08%), while IIT-Raichur and IIT-Kurnool accounted for 39 (12.15%) and 37 respondents (11.53%) respectively. Further, IIT-Kottayam and IIT-Kanchi recorded comparatively lower participation, contributing 28 respondents (8.72%) and 27 respondents (8.41%) respectively. The findings reveal that respondents were reasonably distributed across the institutions, ensuring adequate representation of users from different IITs in South India. This balanced distribution strengthens the reliability and generalizability of the study findings regarding the access and use of electronic information resources among IIT library users.

Table 2. Designation -wise distribution of respondents

Respondent Type	Frequency	Percentage (%)
Faculty	56	17.45
Research Scholar	79	24.61
Student	186	57.94
Total	321	100.00

Table 2 presents the designation-wise distribution of respondents in the selected institutions. The majority of respondents are students, accounting for 186 (57.94%) of the total respondents. This indicates that students constitute the largest user group of library e-resources and rely heavily on electronic information sources for academic purposes. The second largest group comprises research scholars with 79 (24.61%) respondents. Their considerable representation highlights the importance of e-resources in supporting advanced research activities, scholarly communication, and thesis-related work within the institutions. Faculty members constitute the smallest category with 56 (17.45%) respondents. Although fewer in number, faculty members play a significant role in teaching, research supervision, and academic knowledge dissemination. Their use of e-resources remains essential for instructional and research-oriented activities.

Table 3. Gender-wise distribution of respondents

Gender	Frequency	Percentage (%)
Male	207	64.49
Female	114	35.51
Total	321	100.00

Table 3 presents the gender-wise distribution of respondents in the selected institutions. It is observed that the majority of respondents are male, accounting for 207 (64.49%) of the total respondents. In comparison, 114 (35.51%) respondents are female. The findings indicate that the study sample is predominantly male, which may reflect the gender composition commonly observed in technical and engineering-oriented institutions such as IITs. However, the representation of female respondents is also notable, constituting more than one-third of the total sample. The distribution suggests that library e-resources are actively utilised by both male and female users, although male respondents form the larger user group. This highlights the importance of ensuring that e-resource services and library facilities remain inclusive and capable of addressing the information needs of all users, irrespective of gender.

Table 4. Frequency of Visits to the Library

Frequency	Number of Respondents	Percentage (%)
Daily	55	17.13
Twice a Week	48	14.95
Three to Four Days a Week	71	22.12
Once a Week	59	18.38
Occasionally	88	27.42
Total	321	100.00

Table 4 presents the frequency of library visits by the respondents. It is observed that the highest proportion of respondents visit the library occasionally, accounting for 88 (27.42%) respondents. This indicates that many users access the library based on specific academic or research needs rather than following a regular schedule. A considerable number of respondents visit the library three to four days a week, representing 71 (22.12%) respondents, followed by 59 (18.38%) respondents who visit once a week. Additionally, 55 (17.13%) respondents reported visiting the library daily, indicating the presence of regular and consistent library users. The least number of respondents, 48 (14.95%), visit the library twice a week. Overall, the findings suggest that although a section of users frequently utilizes the library, a larger proportion prefers occasional visits, possibly due to the growing accessibility and convenience of electronic resources and online information services.

Table 5. Place of access to e-resources

Place of Access	Mean	SD
Library	2.89	1.24
Class Room	2.98	1.26
Campus	4.61	0.89
Canteen/Cafeteria	2.06	1.20
Hostel	2.97	1.39
PG	2.51	1.34
Home	3.45	1.32

Table 5 presents the places for accessing e-resources. The results indicate that the campus is the most preferred location, with the highest mean score of 4.61 and a relatively low standard deviation (0.89). The home is the second most preferred place, with a mean of score 3.45 and the higher standard deviation (1.32). Moderate usage is observed in the classroom (Mean = 2.98), hostel (Mean =2.97), and library (Mean = 2.89). The relatively higher SD for the hostel (1.39) indicates variability in access behavior among users. The least preferred locations are PG (Mean = 2.51) and canteen/cafeteria (Mean 2.06), indicating minimal usage of e-resources in informal environments. Informal spaces are less preferred, highlighting the importance of stable and reliable access environments.

Table 6. Frequency of Access to E-Resources

Frequency of Access	Frequency	Percentage (%)
Daily	55	17.13
Twice a Week	48	14.95
Three to Four Days a Week	71	22.12
Once a Week	59	18.38
Occasionally	88	27.42
Total	321	100.00

Table 6 presents the frequency of access to e-resources among the respondents. The findings reveal that the highest proportion of respondents access e-resources occasionally, accounting for 88 (27.42%) respondents. This suggests that many users utilize e-resources mainly when required for specific academic or research purposes rather than on a regular basis. A considerable number of respondents access e-resources three to four days a week, representing 71 (22.12%) respondents, followed by 59 (18.38%) respondents who access them once a week. Furthermore, 55 (17.13%) respondents reported accessing e-resources daily, indicating the presence of regular and active users who depend heavily on digital information sources for their academic and research activities. The least proportion of respondents, 48 (14.95%), access e-resources twice a week. The results indicate that although a segment of respondents frequently uses e-resources, a larger proportion accesses them intermittently, depending on academic requirements such as coursework, assignments, project work, research, and examination preparation. The findings emphasise the importance of ensuring the uninterrupted availability and easy accessibility of e-resources to meet the diverse academic needs of users.

Table 7. Type of e-resources used by the respondents

E-Resources	Mean	SD
E-Books	3.67	1.24
E-Journals	3.86	1.15
E-Theses / Dissertations	3.30	1.21
E-Magazines	3.04	1.22
E-News Letters	2.84	1.27
E-Newspapers	3.20	1.28
Indexing/Abstracting Databases	3.40	1.26
Full-Text Databases	3.63	1.20
CD-ROMs / DVDs	2.25	1.29
Subject-Specific Portals	3.51	1.21

Table 7 presents the types of e-resources used by the respondents along with their mean scores and standard deviations. Among the various e-resources, e-journals recorded the highest mean score (Mean = 3.86, SD = 1.15), indicating that they are the most frequently used electronic resource by the respondents. This highlights the importance of scholarly journal articles in supporting academic learning, teaching, and research activities. E-books (Mean = 3.67, SD = 1.24) and full-text databases (Mean = 3.63, SD = 1.20) are also highly utilized, reflecting users' preference for comprehensive and easily accessible digital content. Subject-specific portals (Mean = 3.51, SD = 1.21) and indexing/abstracting databases (Mean = 3.40, SD = 1.26) show moderate to high usage, emphasizing the importance of specialized and organized information retrieval systems for academic and research purposes.

Moderate usage is observed for e-theses/dissertations (Mean = 3.30, SD = 1.21), e-newspapers (Mean = 3.20, SD = 1.28), and e-magazines (Mean = 3.04, SD = 1.22). These resources support both academic and general information needs of the respondents. E-newsletters (Mean = 2.84, SD = 1.27) and CD-ROMs/DVDs (Mean = 2.25, SD = 1.29) are the least used resources. The low usage of CD-ROMs/DVDs particularly reflects the shift from traditional storage media toward internet-based and cloud-accessible digital resources. Overall, the findings indicate that respondents predominantly prefer online and easily accessible scholarly e-resources for their academic and research activities.

Table 8. Use of subscribed e-resources by the respondents

E-Resources	Mean	SD
IEEE/Journals	3.44	1.26
ACM	3.27	1.26
Cambridge University Press	3.15	1.27
EPW	2.84	1.31
IndiaStat	2.61	1.34
JSTOR	3.32	1.28
Wiley eBooks	3.20	1.27
Springer	3.40	1.26
ScienceDirect	3.52	1.23
Harvard Business Review	3.04	1.33
SAGE	3.19	1.28

Table 8 presents the use of subscribed e-resources by the respondents along with their mean scores and standard deviations. Among the subscribed resources, ScienceDirect recorded the highest mean score (Mean = 3.52, SD = 1.23), indicating that it is the most frequently used subscribed e-resource among the respondents. This may be attributed to its extensive collection of scholarly journals, research articles, and scientific publications that support academic and research activities. IEEE/Journals (Mean = 3.44, SD = 1.26) and Springer (Mean = 3.40, SD = 1.26) are also widely used, reflecting their importance in providing quality technical, engineering, and scientific literature. JSTOR (Mean = 3.32, SD = 1.28) and ACM (Mean = 3.27, SD = 1.26) demonstrate moderate to high usage, indicating their relevance for research and academic learning, particularly in computer science, technology, and interdisciplinary studies.

Wiley eBooks (Mean = 3.20, SD = 1.27), SAGE (Mean = 3.19, SD = 1.28), and Cambridge University Press (Mean = 3.15, SD = 1.27) also show moderate usage among respondents, suggesting that these resources are valuable for accessing scholarly books, journals, and academic publications. Harvard Business Review recorded a mean score of 3.04 (SD = 1.33), indicating moderate utilization, particularly for management and business-related information

needs. On the other hand, EPW (Mean = 2.84, SD = 1.31) and IndiaStat (Mean = 2.61, SD = 1.34) are comparatively less used by the respondents. The relatively lower mean scores may indicate limited awareness, subject relevance, or accessibility preferences among users. The findings reveal that respondents mainly prefer internationally recognized scholarly databases and journal platforms that provide reliable, peer-reviewed, and research-oriented content for academic and professional purposes.

Table 9. Purpose of using e-resources by respondents

Purpose	Mean	SD
For Study	4.36	1.00
For Research	4.40	1.01
For Dissertations	3.77	1.29
To Write Assignments	4.31	1.05
For Class Presentations	3.73	1.33
Staying Updated	4.22	1.10

Table 9 presents the purposes for which respondents use e-resources along with their mean scores and standard deviations. The findings reveal that the primary purpose of using e-resources is for research activities, which recorded the highest mean score (Mean = 4.40, SD = 1.01). This indicates that respondents heavily rely on electronic resources for conducting research, accessing scholarly information, and supporting academic investigations. The use of e-resources for study purposes also shows a very high mean score (Mean = 4.36, SD = 1.00), highlighting their significant role in enhancing learning and academic preparation. Similarly, respondents frequently use e-resources to write assignments (Mean = 4.31, SD = 1.05), suggesting that digital information sources are an essential component of coursework and academic tasks.

Staying updated with current information and recent developments is another important purpose, with a mean score of 4.22 (SD = 1.10). This reflects the respondents' dependence on e-resources for accessing recent knowledge, trends, and advancements in their respective fields. Moderate usage is observed for dissertations (Mean = 3.77, SD = 1.29) and class presentations (Mean = 3.73, SD = 1.33). The comparatively higher standard deviation for class presentations indicates variability in respondents' usage patterns for presentation-related activities. The findings demonstrate that e-resources play a crucial role in supporting academic learning, research, assignment preparation, and knowledge updating among respondents. The consistently high mean scores indicate the growing importance of electronic information resources in higher education and research environments.

Table 10. Benefits Availed While Accessing E-Resources

Benefits	Mean	SD
Time-saving	4.49	0.85
A better source of information	4.39	0.83
Access to up-to-date information	4.47	0.77
Ease of access	4.42	0.82
Easy portability	4.33	0.87
24x7 access to e-resources	4.48	0.79

Table 10 presents the benefits availed by respondents while accessing e-resources along with their mean scores and standard deviations. The findings indicate that respondents perceive multiple advantages in the use of e-resources, with all the variables recording high mean

scores above 4.00. Among the identified benefits, time-saving emerged as the most significant benefit with the highest mean score (Mean = 4.49, SD = 0.85). This suggests that respondents strongly agree that e-resources help them access information quickly and efficiently without spending much time searching through printed materials. The benefit of 24×7 access to e-resources also recorded a very high mean score (Mean = 4.48, SD = 0.79), indicating that respondents highly value the ability to access information anytime and from any location. Similarly, access to up-to-date information (Mean = 4.47, SD = 0.77) and ease of access (Mean = 4.42, SD = 0.82) were perceived as major advantages, reflecting the convenience and immediacy offered by digital information resources.

Respondents also considered e-resources as a better source of information (Mean = 4.39, SD = 0.83), highlighting their reliability, comprehensiveness, and relevance for academic and research purposes. Easy portability recorded a mean score of 4.33 (SD = 0.87), suggesting that users appreciate the convenience of accessing e-resources through portable electronic devices such as laptops, tablets, and smartphones. The results clearly demonstrate that respondents strongly recognize the usefulness and advantages of e-resources in supporting academic, research, and information-related activities. The relatively low standard deviation values indicate a high level of agreement among respondents regarding the benefits of e-resources.

6. CONCLUSION

The present study examined the access and utilization of electronic information resources among users of selected IIT libraries in South India. The findings of the study clearly indicate that electronic information resources have become an essential component of academic learning, teaching, and research activities in technology-oriented institutions. The study revealed that students constitute the major user group of e-resources, followed by research scholars and faculty members, highlighting the increasing dependence on digital information sources for academic and research purposes.

The study found that respondents frequently access e-resources through institutional campuses and home environments, reflecting the growing importance of remote and flexible access to scholarly information. E-journals, e-books, full-text databases, and subject-specific portals emerged as the most preferred electronic resources, indicating users' strong preference for scholarly and research-oriented digital content. Among the subscribed resources, platforms such as ScienceDirect, IEEE, Springer, JSTOR, and ACM were extensively utilized, demonstrating the significance of internationally recognized databases in supporting technical education and research activities in IITs. The findings further revealed that the primary purposes of using e-resources include research work, academic study, assignment preparation, and staying updated with current developments in respective fields. Respondents perceived e-resources as highly beneficial due to their time-saving nature, ease of access, availability of up-to-date information, portability, and round-the-clock accessibility. These advantages have significantly enhanced users' academic efficiency, research productivity, and information accessibility.

Despite the positive perception and extensive use of e-resources, the study also identified certain challenges affecting their effective utilization. Issues such as internet connectivity problems, limited awareness regarding available resources, technical difficulties, and the need for additional user training continue to hinder optimal usage among some users. These findings indicate the necessity for continuous improvement in digital infrastructure, awareness programmes, and information literacy initiatives within academic institutions. The study concludes that electronic information resources play a vital role in supporting the

academic and research ecosystem of IITs in South India. The increasing dependence on digital resources reflects the transformation of academic libraries from traditional print-based systems to technology-enabled knowledge centres. The study emphasizes the need for academic libraries and institutional administrators to strengthen e-resource services through improved infrastructure, enhanced subscription support, user orientation programmes, and continuous evaluation of user needs. Such initiatives will contribute toward maximising the effective utilization of electronic information resources and improving the overall quality of higher education and research in technical institutions.

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