# Challenges in Information Management Among Engineering College Librarians in Andhra Pradesh

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**Abstract:**

*This research explores the obstacles encountered by librarians in the administration of information resources within engineering college libraries across Andhra Pradesh. Using a structured survey methodology, data were collected from a range of institutions—government, private, and minority-run—to identify shared information management (IM) challenges. Findings reveal significant impediments such as inadequate funding, scarcity of qualified personnel, hesitancy toward adopting technological advancements, and substandard infrastructure. These factors collectively undermine the efficient organization, retrieval, and dissemination of information, weakening library service quality. The study stresses the necessity for strategic reforms, including enhanced training initiatives, greater financial support, and the adoption of advanced information technologies. Addressing these barriers could strengthen IM practices and better support the academic and research activities of library users.*

**Keywords:** *Information Management, Engineering Libraries, Digital Transformation, Infrastructure Challenges, Training and Development*

## Introduction

Libraries at engineering colleges are pivotal in fostering knowledge exchange and supporting the academic pursuits of students and researchers alike. Efficient information management (IM) remains crucial to providing seamless access to relevant resources. Nonetheless, librarians in these settings face numerous hurdles that obstruct optimal IM practices. Prior research by Umap & Jani, (2024) identifies persistent funding shortages, workforce inadequacies, and technological resistance as major concerns. Pattar & Hadagali, (2022) further emphasize deficiencies in information literacy programs and inadequate librarian training as critical setbacks. The rapid infusion of information and communication technologies (ICT) into library operations, as discussed by Jadhav et al., (2023), has introduced complexities such as the need for constant updating of policies and balancing between digital and print resources. Similarly, Hosmani, (2018) pointed to infrastructure challenges and limited technical expertise as common struggles. The urgency for digital readiness became even more pronounced during

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the COVID-19 pandemic, exposing vulnerabilities in library systems. D'Souza, (2024) notes that although librarians are increasingly aware of AI applications, practical adoption remains sluggish due to prevailing limitations. Considering these multifaceted issues, this study focuses on the unique constraints facing librarians at engineering colleges in Andhra Pradesh. Understanding these challenges is essential to crafting effective strategies for enhancing library services and meeting the evolving needs of academic users, especially as information technologies rapidly advance and demand for digital resources grows.

**Review of Literature**

The transformation of academic libraries—particularly in engineering institutions—has been shaped significantly by the rise of digital technologies. Muzamil Mushtaq & Ariba Tausif, (2020) explored the evolution of e-resource collections, noting a lack of formal policies despite institutional efforts to enhance collections. Islam et al., (2023) identified critical gaps in knowledge-sharing frameworks, findings that echo the struggles faced by engineering librarians amid technological transitions. Hombali, (2022) highlighted the growing role of librarians in research data management, underscoring the need for broader skill sets. Similarly, Grote et al., (2024) argued for stronger support systems for AI adoption in libraries, a sentiment relevant to engineering libraries where training deficiencies persist. Research by Islam et al., (2023) on big data initiatives in Indonesia points to common barriers: limited digital literacy and resource constraints. Batool et al., (2022) documented the increased strain on library users during the pandemic, stemming from poor digital resource access and weak information literacy infrastructure. Finally, Shahzad & Khan, (2024) outlined technical skill gaps and infrastructural deficiencies that impede big data integration, offering insights relevant to Indian engineering colleges. Despite the rich body of literature on IM, focused investigations into the challenges within engineering libraries in Andhra Pradesh are rare. Most studies generalize findings or concentrate on national trends, overlooking regional nuances. This study seeks to fill that gap, providing insights tailored to the distinctive conditions of Andhra Pradesh's engineering education sector.

**Objectives**

- To examine correlations between librarians' professional experience and the type of engineering college they serve.
- To assess the availability of various information resources across government, private, and minority institutions.
- To identify the nature and extent of IM constraints specific to several types of engineering libraries.
- To determine if perceptual differences about IM challenges exist across institutional types.
- To determine systemic barriers to effective information management practices.

## Methodology

Employing a quantitative research framework, the study targeted librarians working in government, private, and minority engineering colleges across Andhra Pradesh. By concentrating on these three institutional types, the research captures a diverse range of organizational structures and operational challenges. Participants were selected through purposive sampling to ensure proportional representation. An online questionnaire (https://forms.gle/ErtdVJU5hXjCdveD9) yielded 19 completed responses from an initial pool of 50 distributed surveys. Though modest in number, the sample's diversity reflects the varied realities of library environments across the region, allowing for robust comparative analysis.

The primary data collection tool was a structured questionnaire designed to gather various types of information, including:

- Demographic Data: Information on gender, years of experience, and designation.
- Resource Availability: Insights into the availability and accessibility of information resources.
- Perceived Challenges: Librarians' perceptions of the challenges related to information management in their libraries.

The questionnaire was disseminated online, which facilitated accessibility and outreach. Ethical considerations were prioritized, with a consent section informing participants about the study's purpose and ensuring confidentiality, as no personal identifiers were collected apart from the type of college. The data collected were subjected to both descriptive and inferential statistical analyses. Descriptive statistics were used to explore frequency distributions and central tendencies, while Pearson correlation analysis identified relationships between key variables, such as years of experience and perceived IM challenges. To assess differences in perceptions across the three institutional types, one-way Analysis of Variance (ANOVA) was employed, with post-hoc tests conducted to identify specific group differences where significant variations were found. A significant level of 0.05 was established for all statistical tests.

## Limitations of the Study

This study is subject to several limitations that may affect the interpretation and generalizability of the findings:

- Small Sample Size: The final sample consisted of only nineteen completed responses, which may limit the robustness and generalizability of the results across the broader population of engineering college libraries in Andhra Pradesh.
- Self-Reported Data: The reliance on self-reported data from library professionals may introduce response bias, as participants might provide socially desirable answers or may not accurately reflect their experiences and perceptions.
- Purposive Sampling: While purposive sampling was employed to ensure representation

from different institutional types, this method may limit the randomness of selection, potentially affecting the diversity and breadth of perspectives captured in the study.

- Geographic Limitation: The focus on engineering colleges in Andhra Pradesh restricts the applicability of the findings to other states or national contexts, limiting the study's relevance to a wider audience. These limitations should be considered when interpreting the results and implications of the research.

**Data Analysis and Discussions**

Table 1: Gender vs. Types of Libraries

| Gender | Type of Engineering Library | | | Total | Pearson correlation |
|---|---|---|---|---|---|
| | Government | Private | Minority | | |
| Male | 3 (15.8) | 10 (52.6) | 2 (10.5) | 15 (78.9) | Value = -0.135 |
| Female | 1 (5.3) | 3 (15.8) | 0 (0.0) | 4 (21.1) | (p=0.580[c]) |
| **Total** | **4 (21.1)** | **13 (68.4)** | **2 (10.5)** | **19 (100.0)** | |

(Values inside parentheses indicate percentage.)

The data presented in Table 1 illustrates the gender distribution across different types of engineering libraries—Government, Private, and Minority. A total of nineteen participants were recorded, with 78.9% being male and 21.1% female. Among these, most of both male and female respondents are affiliated with private libraries (52.6% and 15.8%, respectively). Government libraries employ slightly more males (15.8%) than females (5.3%), while minority institutions show no female representation. The Pearson correlation coefficient (-0.135) with a significance level (p = 0.580) indicates a weak and statistically insignificant relationship between gender and library type. This implies that gender does not significantly influence the type of engineering library in which an individual is employed.

Table 2: Years of Experience in Library Services vs. Types of Libraries

| Years of Experience in Library Services | Type of Engineering Library | | | Total | Pearson correlation |
|---|---|---|---|---|---|
| | Government | Private | Minority | | |
| Less than 5 years | 0 | 1 (5.3) | 0 | 1 (5.3) | |
| 5–10 years | 1 (5.3) | 4 (21.1) | 1 (5.3) | 6 (31.6) | Value = 0.248 |
| 11–20 years | 2 (10.5) | 5 (26.3) | 1 (5.3) | 8 (42.1) | (p=0.306[c]) |
| More than 20 years | 1 (5.3) | 3 (15.8) | 0 | 4 (21.1) | |
| **Total** | **4 (21.1)** | **13 (68.4)** | **2 (10.5)** | **19 (100.0)** | |

(Values inside parentheses indicate percentage.)

Table 2 explores the distribution of years of experience among library staff across different types of engineering libraries—Government, Private, and Minority. Out of the nineteen participants, the majority have between 11 to 20 years of experience (42.1%), in private libraries (26.3%). Staff with 5–10 years of experience also show a similar trend, concentrated in private libraries (21.1%). Interestingly, those with less than 5 years of experience are minimally represented (5.3%), and only in private libraries. The data reveals that government and minority libraries attract more experienced staff, especially in the 11–20-year range. The Pearson correlation coefficient of 0.248 with a p-value of 0.306 suggests a weak positive but statistically insignificant relationship between years of experience and type of library.

Table 3: Information resources are available in engineering libraries vs. types of libraries.

| **What types of information resources are available in your engineering library?** | **Type of Engineering Library** | | | **Total** | **Pearson correlation** |
|---|---|---|---|---|---|
| | **Government** | **Private** | **Minority** | | |
| Print Books | 2 (10.5) | 3 (15.8) | 1 (5.3) | 6 (31.6) | Value = 0.336 (0.160[c]) |
| E-books | 1 (5.3) | 2 (10.5) | 0 (0.0) | 3 (15.8) | |
| Journals (Print/Digital) | 1 (5.3) | 1 (5.3) | 0 (0.0) | 2 (10.5) | |
| Technical Reports/Theses | 0 (0.0) | 2 (10.5) | 0 (0.0) | 2 (10.5) | |
| Databases (IEEE, ScienceDirect, etc.) | 0 (0.0) | 1 (5.3) | 1 (5.3) | 2 (10.5) | |
| Standards/Patents | 0 (0.0) | 2 (10.5) | 0 (0.0) | 2 (10.5) | |
| Others | 0 (0.0) | 2 (10.5) | 0 (0.0) | 2 (10.5) | |
| **Total** | **4 (21.1)** | **13 (68.4)** | **2 (10.5)** | **19 (100.0)** | |

(Values inside parentheses indicate percentage.)

Table 3 highlights the types of information resources available in various engineering libraries—Government, Private, and Minority. Out of nineteen libraries, print books are the most common source, available in all three types but most prevalent in private libraries (15.8%). E-books and journals (print/digital) are less commonly reported, with limited availability

across government and private institutions. Databases like IEEE and ScienceDirect are rare, present only in one private and one minority institution. Similarly, standards/patents, technical reports/theses, and other resources are exclusive to private libraries. The Pearson correlation coefficient of 0.336 with a p-value of 0.160 indicates a moderate but statistically insignificant positive correlation between the type of library and availability of information resources.

Table 4: Analysis of Variance in Library IM Limitations

| Dependent Variable | | | Mean Difference (I-J) | Std. Error | Sig. | 95% Confidence Interval | |
|---|---|---|---|---|---|---|---|
| | | | | | | Lower Bound | Upper Bound |
| Information overload/data explosion | Government | Private | -0.827 | 0.829 | 0.589 | -2.97 | 1.31 |
| | | Minority | -0.750 | 1.256 | 0.824 | -3.99 | 2.49 |
| | Private | Government | 0.827 | 0.829 | 0.589 | -1.31 | 2.97 |
| | | Minority | 0.077 | 1.102 | 0.997 | -2.77 | 2.92 |
| | Minority | Government | 0.750 | 1.256 | 0.824 | -2.49 | 3.99 |
| | | Private | -0.077 | 1.102 | 0.997 | -2.92 | 2.77 |
| Lack of skilled manpower or trained staff | Government | Private | -0.596 | 0.769 | 0.723 | -2.58 | 1.39 |
| | | Minority | -1.250 | 1.165 | 0.544 | -4.26 | 1.76 |
| | Private | Government | 0.596 | 0.769 | 0.723 | -1.39 | 2.58 |
| | | Minority | -0.654 | 1.022 | 0.800 | -3.29 | 1.98 |
| | Minority | Government | 1.250 | 1.165 | 0.544 | -1.76 | 4.26 |
| | | Private | 0.654 | 1.022 | 0.800 | -1.98 | 3.29 |
| Limited access to modern technologies | Government | Private | -0.346 | 0.817 | 0.906 | -2.46 | 1.76 |
| | | Minority | -1.500 | 1.238 | 0.464 | -4.69 | 1.69 |
| | Private | Government | 0.346 | 0.817 | 0.906 | -1.76 | 2.46 |
| | | Minority | -1.154 | 1.086 | 0.550 | -3.96 | 1.65 |
| | Minority | Government | 1.500 | 1.238 | 0.464 | -1.69 | 4.69 |
| | | Private | 1.154 | 1.086 | 0.550 | -1.65 | 3.96 |
| Inadequate funding and budget constraints | Government | Private | -0.827 | 0.829 | 0.589 | -2.97 | 1.31 |
| | | Minority | -0.750 | 1.256 | 0.824 | -3.99 | 2.49 |
| | Private | Government | 0.827 | 0.829 | 0.589 | -1.31 | 2.97 |
| | | Minority | 0.077 | 1.102 | 0.997 | -2.77 | 2.92 |
| | Minority | Government | 0.750 | 1.256 | 0.824 | -2.49 | 3.99 |
| | | Private | -0.077 | 1.102 | 0.997 | -2.92 | 2.77 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Poor quality or outdated data | Government | Private | -0.250 | 0.912 | 0.960 | -2.60 | 2.10 |
| | | Minority | 0.750 | 1.382 | 0.852 | -2.82 | 4.32 |
| | Private | Government | 0.250 | 0.912 | 0.960 | -2.10 | 2.60 |
| | | Minority | 1.000 | 1.212 | 0.693 | -2.13 | 4.13 |
| | Minority | Government | -0.750 | 1.382 | 0.852 | -4.32 | 2.82 |
| | | Private | -1.000 | 1.212 | 0.693 | -4.13 | 2.13 |
| Lack of standard classification/ indexing systems | Government | Private | -0.827 | 0.829 | 0.589 | -2.97 | 1.31 |
| | | Minority | -0.750 | 1.256 | 0.824 | -3.99 | 2.49 |
| | Private | Government | 0.827 | 0.829 | 0.589 | -1.31 | 2.97 |
| | | Minority | 0.077 | 1.102 | 0.997 | -2.77 | 2.92 |
| | Minority | Government | 0.750 | 1.256 | 0.824 | -2.49 | 3.99 |
| | | Private | -0.077 | 1.102 | 0.997 | -2.92 | 2.77 |
| Resistance to digital transformation | Government | Private | -0.827 | 0.829 | 0.589 | -2.97 | 1.31 |
| | | Minority | -0.750 | 1.256 | 0.824 | -3.99 | 2.49 |
| | Private | Government | 0.827 | 0.829 | 0.589 | -1.31 | 2.97 |
| | | Minority | 0.077 | 1.102 | 0.997 | -2.77 | 2.92 |
| | Minority | Government | 0.750 | 1.256 | 0.824 | -2.49 | 3.99 |
| | | Private | -0.077 | 1.102 | 0.997 | -2.92 | 2.77 |
| Challenges in preserving digital information | Government | Private | -0.577 | 0.886 | 0.794 | -2.86 | 1.71 |
| | | Minority | -1.000 | 1.342 | 0.741 | -4.46 | 2.46 |
| | Private | Government | 0.577 | 0.886 | 0.794 | -1.71 | 2.86 |
| | | Minority | -0.423 | 1.177 | 0.932 | -3.46 | 2.61 |
| | Minority | Government | 1.000 | 1.342 | 0.741 | -2.46 | 4.46 |
| | | Private | 0.423 | 1.177 | 0.932 | -2.61 | 3.46 |
| Lack of institutional IM policy or strategy | Government | Private | -0.827 | 0.829 | 0.589 | -2.97 | 1.31 |
| | | Minority | -0.750 | 1.256 | 0.824 | -3.99 | 2.49 |
| | Private | Government | 0.827 | 0.829 | 0.589 | -1.31 | 2.97 |
| | | Minority | 0.077 | 1.102 | 0.997 | -2.77 | 2.92 |
| | Minority | Government | 0.750 | 1.256 | 0.824 | -2.49 | 3.99 |
| | | Private | -0.077 | 1.102 | 0.997 | -2.92 | 2.77 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Legal/ethical issues (e.g., copyright, IPR) | Government | Private | -0.885 | 0.905 | 0.601 | -3.22 | 1.45 |
| | | Minority | -0.500 | 1.371 | 0.930 | -4.04 | 3.04 |
| | Private | Government | 0.885 | 0.905 | 0.601 | -1.45 | 3.22 |
| | | Minority | 0.385 | 1.202 | 0.945 | -2.72 | 3.49 |
| | Minority | Government | 0.500 | 1.371 | 0.930 | -3.04 | 4.04 |
| | | Private | -0.385 | 1.202 | 0.945 | -3.49 | 2.72 |
| Data security and privacy concerns | Government | Private | -0.827 | 0.829 | 0.589 | -2.97 | 1.31 |
| | | Minority | -0.750 | 1.256 | 0.824 | -3.99 | 2.49 |
| | Private | Government | 0.827 | 0.829 | 0.589 | -1.31 | 2.97 |
| | | Minority | 0.077 | 1.102 | 0.997 | -2.77 | 2.92 |
| | Minority | Government | 0.750 | 1.256 | 0.824 | -2.49 | 3.99 |
| | | Private | -0.077 | 1.102 | 0.997 | -2.92 | 2.77 |
| Poor user information-seeking behaviour | Government | Private | 0.154 | 0.854 | 0.982 | -2.05 | 2.36 |
| | | Minority | 0.000 | 1.293 | 1.000 | -3.34 | 3.34 |
| | Private | Government | -0.154 | 0.854 | 0.982 | -2.36 | 2.05 |
| | | Minority | -0.154 | 1.134 | 0.990 | -3.08 | 2.77 |
| | Minority | Government | 0.000 | 1.293 | 1.000 | -3.34 | 3.34 |
| | | Private | 0.154 | 1.134 | 0.990 | -2.77 | 3.08 |
| Insufficient collaboration between departments | Government | Private | -0.019 | 0.822 | 1.000 | -2.14 | 2.10 |
| | | Minority | 0.750 | 1.245 | 0.821 | -2.46 | 3.96 |
| | Private | Government | 0.019 | 0.822 | 1.000 | -2.10 | 2.14 |
| | | Minority | 0.769 | 1.092 | 0.764 | -2.05 | 3.59 |
| | Minority | Government | -0.750 | 1.245 | 0.821 | -3.96 | 2.46 |
| | | Private | -0.769 | 1.092 | 0.764 | -3.59 | 2.05 |

Table 4 presents a multiple comparison analysis of various IM constraints across government, private, and minority engineering libraries. The results show no statistically significant differences in perceptions of constraints such as information overload, lack of skilled workforce, access to technology, funding limitations, outdated data, resistance to digital transformation, and others. All significance (Sig.) values are well above the 0.05 threshold, indicating that none of the mean differences between the library types are statistically meaningful. For example, the perceived impact of "information overload/data explosion" between government and private libraries has a mean difference of -0.827 with a Sig. value of 0.589, showing no significant difference. Similarly, constraints like "Lack of institutional IM policy," "Legal/ethical issues," and "Poor user information-seeking behavior" follow the same pattern across all pairwise comparisons.

**Opinion on Causes of Constraints**

When answering an open-ended question on causes for constraints on information management, Librarians working in engineering colleges—whether in government, private, or minority institutions—face several persistent constraints that hinder effective information management. A major challenge cited across the board is financial limitations, which restrict the development and modernization of library infrastructure necessary for efficient IM practices. Additionally, technological adaptation remains a barrier, particularly for senior librarians who often struggle with learning and integrating new digital tools and systems. Another significant issue arises from internal administrative dynamics, where librarians are frequently placed under the supervision of in-charge officials who lack formal training or understanding of library science. This disconnects leads to miscommunication, undervaluation of the librarian's role, and often obstructs informed decision-making within the library environment.

**Findings and Discussion**

The study on the challenges faced by librarians in managing information in engineering college libraries in Andhra Pradesh reveals significant systemic issues that hinder effective library services. Key findings indicate that inadequate funding, a shortage of trained personnel, resistance to technology adoption, and poor infrastructure are prevalent across various types of libraries—government, private, and minority. Despite differences in resource availability and staff demographics, the perceived challenges remain consistent, suggesting that these issues are not isolated to specific institutions but are widespread throughout the region. The research highlights the importance of addressing these challenges through strategic interventions, such as enhanced training programs, increased financial investment, and the integration of advanced information technologies. The COVID-19 pandemic has further exacerbated these issues, emphasizing the urgent need for libraries to adapt to digital platforms and improve their IM systems. The findings highlight deep-rooted systemic challenges that cut across institutional classifications. Inadequate funding, a lack of trained professionals, technological resistance, and infrastructure weaknesses emerged as consistent obstacles.

Gender and Professional Experience: Variations in gender representation and experience levels point to underlying disparities in recruitment and professional development practices.

Resource Availability: Private institutions tend to offer richer information resources, widening the accessibility gap compared to government and minority colleges.

Technological Integration: Resistance to adoption technology underscores the urgent need for targeted training initiatives and supportive policy frameworks.

Collaborative Solutions: The data suggest that isolated interventions may be insufficient; instead, broader collaborations and policy reforms are needed to achieve systemic change.

Collectively, these challenges highlight the strategic importance of strengthening IM to elevate the quality of academic support services.

## Conclusion

Despite variations in resource endowments and staff profiles among different institutions, the core IM challenges appear widespread and systemic. Government and minority institutions benefit from experienced staff but often lag in resource availability compared to private colleges. Across the board, inadequate funding, technological deficits, and policy gaps are critical concerns. The study recommends sustained financial investment, regular professional development initiatives, the adoption of innovative technologies, and the establishment of clear institutional policies. Strengthening information literacy programs and encouraging inter-institutional collaborations are also key to improving library services. By implementing these strategies, engineering college libraries in Andhra Pradesh can better navigate the evolving information landscape and more effectively support their academic communities.

## Reference


Batool, S. H., Malik, A., Safdar, M., & Ali, A. F. (2022). Pandemic Information Access Challenges and Expectations about the Post-Covid Era: A Survey of Pakistan Students' Opinion Regarding Academic Libraries' Services and Staff. The Journal of Academic Librarianship, 48(6), 102604. https://doi.org/10.1016/j.acalib.2022.102604

D'Souza, F. (2024). Awareness and Adoption of AI Technologies in the Libraries of Karnataka (Version 1). arXiv. https://doi.org/10.48550/ARXIV.2407.18933

Grote, M., Lysholm Faber, H. C., & Gasparini, A. (2024). Artificial Intelligence in PhD education: New perspectives for research libraries. LIBER Quarterly: The Journal of the Association of European Research Libraries, 34(1), 1–29. https://doi.org/10.53377/lq.18137

Hombali, P. (2022). The Role of Librarians in Research Data Management: Challenges and Opportunities (SSRN Scholarly Paper 4422179). Social Science Research Network. https://papers.ssrn.com/abstract=4422179

Hosmani, V. (2018). Status and Problems of Automation in College Libraries, India: A Review of Literature. Journal of Information Management and Educational Technology. https://www.academia.edu/42804902/Status_and_Problems_of_Automation_in_College_Libraries_India_A_Review_of_Literature

Islam, N., Islam, K., & Islam, M. (2023). Exploring the Potential of Big Data Analytics in Improving Library Management in Indonesia: Challenges, Opportunities, and Best Practice. Internet Reference Services Quarterly, 27(2), 111–120. https://doi.org/10.1080/10875301.2023.2184900

Jadhav, M. S., Jadhav, S. S., & Dhawle, Dr. G. U. (2023). An ICT based collection development model for engineering college's libraries: Challenges and problems. International Journal of Advanced Academic Studies, 5(12), 01–05. https://doi.org/10.33545/27068919.2023.v5.i12a.1081

Muzamil Mushtaq, M. M., & Ariba Tausif, A. T. (2020). Collection management of electronic resources in engineering college libraries of Aligarh, India: A study. Collection and Curation, 39(3), 89–96. https://doi.org/10.1108/CC-09-2019-0028

Pattar, V. D., & Hadagali, G. S. (2022). Fostering Information Literacy Programmes in Engineering College Libraries: A study of Mumbai Region. Journal of Indian Library Association Now Available at Https://Journal.Ilaindia.Net/, 57(4), Article 4.

Shahzad, K., & Khan, S. A. (2024). Factors influencing the adoption of big data in libraries: A systematic literature review of peer-reviewed articles from 2013 to 2023. The Electronic Library, 42(5), 722–740. https://doi.org/10.1108/EL-02-2024-0057

Umap, Mrs. M., & Jani, Dr. R. (2024). A Study of E-Resources Management & Management Challenges Faced in Engineering College Libraries. Educational Administration Theory and Practices. https://doi.org/10.53555/kuey.v30i5.3737

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