



An Assessment of Library Automation and ICT-Based Services in College Libraries Affiliated to Kuvempu University, India

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Abstract

The rapid development of Information and Communication Technology (ICT) has significantly transformed the functioning of academic libraries. Library automation has become a vital component of library management, enabling improved access, efficiency, and user satisfaction. The present study assesses the status of library automation and ICT-based services in college libraries affiliated with Kuvempu University, covering institutions in the Shivamogga and Chikkamagaluru districts of Karnataka. Data were collected from sixty college libraries through a structured questionnaire and observation method. The study focuses on the implementation of library software, database management systems, Online Public Access Catalogue (OPAC), and barcode systems. The findings reveal that 88.33% of college libraries have adopted automation software, while 11.67% remain partially or non-automated. The results indicate steady progress toward automation and ICT-based services, although gaps persist in a few institutions due to resource limitations and inadequate technical support. The paper concludes with recommendations for enhancing automation, networking, and ICT infrastructure across all affiliated colleges.

Keywords: Library Automation; ICT-Based Services; E-Granthalaya; Koha; OPAC; Barcode System; Kuvempu University.

Introduction

The 21st century has witnessed a paradigm shift in library functioning due to the rapid advancement of Information and Communication Technology (ICT)¹. Modern academic libraries have evolved from traditional document repositories into dynamic information centers that integrate automation tools and digital services to meet the diverse needs of users². Library automation facilitates efficient cataloguing, circulation, and management of library resources through integrated library management systems³. At the same time, ICT-based services expand access to electronic resources, online databases, and web-based information services⁴.

In India, initiatives taken by statutory bodies such as the University Grants Commission (UGC) and the INFLIBNET Centre have significantly accelerated the adoption of library automation in academic institutions⁵. College libraries affiliated with state universities play a vital role in supporting teaching, learning, and research activities, particularly in semi-urban and rural regions⁶. However, disparities in funding, ICT infrastructure, and trained manpower have resulted in uneven levels of automation among college libraries⁷.

Kuvempu University, established in 1987, has more than 80 affiliated colleges located in the Shivamogga and Chikkamagaluru districts of Karnataka. Although many of these colleges have initiated library automation and ICT-based services, systematic assessment studies remain limited. Hence,

the present study attempts to analyse the status of library automation and ICT-based services in college libraries affiliated with Kuvempu University.

Objectives of the Study: The present study aims to assess the extent of library automation among college libraries affiliated with Kuvempu University. It seeks to identify the types of library automation software and database management systems in use across these institutions. Further, the study examines the implementation of OPAC and barcode systems and analyses the availability and status of ICT-based services in college libraries. Based on the findings, the study also proposes suitable measures for strengthening automation and ICT facilities.

Methodology

The study adopted a survey method to assess the status of library automation and ICT-based services in College libraries affiliated with Kuvempu University². Sixty Degree Colleges located in Shivamogga and Chikkamagaluru districts were selected for the study. Data were collected using a structured questionnaire administered to librarians and library professionals. Personal visits and informal interviews were conducted to validate the responses obtained through the questionnaire². The collected data were analysed using simple percentage techniques⁸⁻¹¹.

Data Analysis and Interpretation: Library Automation Status: Out of 80 undergraduate colleges of Kuvempu

University, 60 college libraries were surveyed, 53 (88.33%) have implemented library automation, while 7 (11.67%) remain non-automated or partially automated on-automated. The findings indicate a positive trend towards automation among college libraries, which is consistent with similar studies conducted in other parts of India. This indicates a strong trend towards automation among college libraries under Kuvempu University.

Table-1: Library Automation Status of College Libraries.

Automation Status	No. of Colleges	Percentage (%)
Automated (Yes)	53	88.33
Not Automated (No)	7	11.67
Total	60	100.00

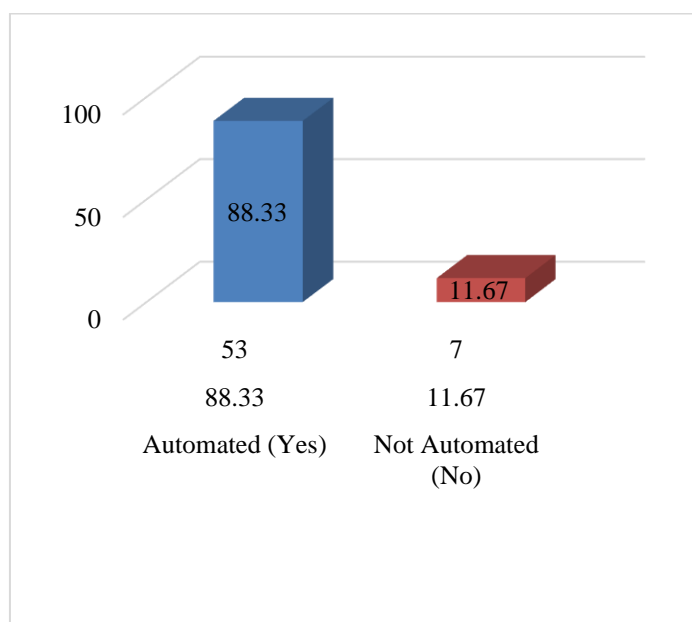


Figure-1: Library Automation Status of College Libraries.

Table-1 and Figure-1 show that a majority of college libraries (nearly nine out of ten) have automated their operations using library management software. However, a small percentage (11.67%) are yet to initiate automation due to infrastructural or financial constraints. The analysis indicates that a majority of college libraries have implemented automation, reflecting a positive trend towards modernization¹²

Library Software Used: The study reveals that different types of library automation software are used across the surveyed colleges. E-Granthalaya (versions 3.0 and 4.0) is the most widely used software, followed by E-Lib and Koha. The preference for open-source and government-supported software is mainly due to cost-effectiveness, flexibility, and technical support availability.

Table-2: Library Software Used by College Libraries.

Library Software	No. of Colleges	Percentage (%)
E-Granthalaya (3.0 & 4.0)	18	30.00
E-Lib	16	26.67
Koha	9	15.00
EasyLib	2	3.33
Libsoft	2	3.33
NewGenLib	1	1.67
Others / Not Specified	12	20.00
Total	60	100.00

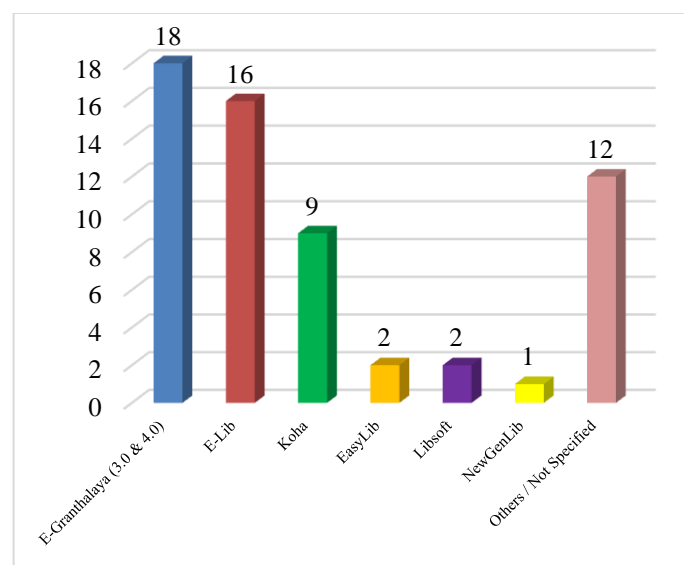


Figure-2: Library Software used by College Libraries.

Table-2 and Figure-2 represent that among the automated libraries, E-Granthalaya and E-Lib together account for more than half (56.67%) of the total automation software used. The adoption of open-source software such as Koha (15%) is also noteworthy, indicating growing awareness about flexible, cost-effective solutions. E-Granthalaya and E-Lib together constitute more than half of the automation software adopted, while the use of Koha reflects increasing preference for open-source solutions.

Database Management Systems (DBMS) Used: The analysis shows that most college libraries use either SQL-based local servers or cloud-based systems for managing bibliographic and circulation data. The growing adoption of cloud-based database systems indicates a shift towards scalable and remotely accessible library management solutions.

Table-3: Types of Database Management Systems Used.

Type of DBMS	No. of Colleges	Percentage (%)
Cloud-based Systems	25	41.67
SQL-based Systems (Local Server)	26	43.33
Not Implemented / Not Specified	9	15.00
Total	60	100.00

Table-3 data stated that a balanced trend is observed between SQL-based and cloud-based database systems. Nearly half of the libraries (43.33%) still depend on local SQL servers, while 41.67% have adopted modern cloud-based solutions, ensuring better accessibility and data security.

OPAC Implementation: The availability of an Online Public Access Catalogue (OPAC) is considered a key indicator of library automation¹³. The study reveals that OPAC facilities are available in 88.33% of the surveyed college libraries, enabling users to search library resources efficiently.

Table-4: OPAC Implementation in College Libraries.

OPAC Status	No. of Colleges	Percentage (%)
Implemented (Yes)	53	88.33
Not Implemented (No)	7	11.67
Total	60	100.00

Table-4 data shows that 88.33% of the libraries have OPAC facilities, enabling users to search and locate documents electronically. However, 11.67% still rely on manual catalogues, reflecting incomplete automation.

Adoption of the Barcode System: Barcode technology plays an important role in automating circulation, inventory control, and stock verification processes. The study found that 78.33% of college libraries have adopted barcode systems, which significantly improves operational efficiency and reduces manual errors.

Table-5 data represent a large majority (78.33%) of the college libraries have adopted barcode technology, while the remaining 21.67% still follow manual circulation processes. Barcode implementation is higher among the government and well-established aided colleges than among newer or private institutions.

Table-5: Adoption of Barcode System in College Libraries

Barcode Adoption	No. of Colleges	Percentage (%)
Adopted (Yes)	47	78.33
Not Adopted (No)	13	21.67
Total	60	100.00

Results and Discussion

The analysis of data gathered from 60 College Libraries affiliated with Kuvempu University provides valuable insights into the current state of automation and ICT-based services. The findings reveal that a majority of college libraries affiliated with Kuvempu University have made substantial progress in implementing automation and ICT-based services. The widespread adoption of OPAC and barcode systems has enhanced access to information resources and improved user satisfaction. However, challenges such as inadequate funding, lack of trained staff, and insufficient ICT infrastructure continue to hinder complete automation in some institutions.

Status of Library Automation: Out of 60 libraries surveyed, 53 (88.33%) have implemented automation, which demonstrates a positive trend toward modernisation. However, 7 libraries (11.67%) remain non-automated, mainly due to limited funds, lack of skilled staff, or insufficient infrastructure. This finding aligns with similar studies in Indian academic libraries, where financial and technical barriers often delay automation.

Library Software Preferences: The study found that E-Granthalaya (30%) and E-Lib (26.67%) are the most widely used software, together covering more than half of the automated libraries. Koha (15%) is gaining ground, especially among government colleges, due to its open-source nature, flexibility, and community support. The limited use of other software such as EasyLib, Libsoft, and NewGenLib suggests that most libraries prefer established and institutionally supported platforms¹³.

Database Management Systems: The distribution between cloud-based and SQL-based systems (41.67% and 43.33%, respectively) reflects a transitional phase in library automation. While local SQL servers provide direct control over data, cloud platforms offer improved accessibility, backup, and scalability. The growing inclination toward cloud technology indicates an evolving digital infrastructure among affiliated colleges.

OPAC and Barcode Implementation: The study revealed that 88.33% of libraries have implemented OPAC services, allowing users to locate materials through computerised search interfaces. This reflects substantial progress toward user-centred automation. Likewise, 78.33% of libraries have adopted barcode technology for circulation, which has enhanced efficiency and

minimised errors in issue-return processes. Nonetheless, a few colleges still rely on manual cataloguing and circulation methods, which hinder operational efficiency.

ICT-Based Services: Most college libraries now offer basic ICT-based services such as internet browsing, e-resources access, and reprographic facilities. A smaller proportion provides advanced services such as institutional repositories or remote access to digital content. Librarians highlighted the need for training programs and government-funded initiatives to enhance ICT adoption and e-content management.

Challenges Identified: Despite significant progress in automation and ICT adoption, several challenges continue to affect college libraries affiliated with Kuvempu University. Limited funding for the procurement and maintenance of hardware and software remains a major constraint. Inadequate ICT skills among library staff and the lack of regular training opportunities further hinder effective utilisation of automated systems. Many rural colleges face unstable internet connectivity, which affects access to cloud-based services and e-resources. Additionally, the absence of centralised technical support and limited awareness about the capabilities of open-source software pose challenges to achieving complete automation.

Conclusion

The study concludes that college libraries affiliated with Kuvempu University have achieved significant progress in library automation and ICT adoption. With 88.33% of libraries automated and a similar proportion providing OPAC facilities, the region demonstrates a strong commitment to modernising library services. The use of E-Granthalaya, E-Lib, and Koha indicates a balance between proprietary and open-source automation tools. Moreover, the adoption of barcode technology (78.33%) reflects operational maturity in circulation management.

However, the remaining unautomated or partially automated libraries require immediate attention and support to bridge the digital divide. Ensuring uniform ICT infrastructure and capacity-building programs across all affiliated institutions will significantly enhance user satisfaction and library effectiveness¹⁴. The study reveals that college libraries affiliated with Kuvempu University have made significant progress in automation and ICT-based services. Nevertheless, a small number of libraries remain partially automated due to financial constraints and infrastructural limitations. Strengthening ICT infrastructure, promoting open-source software, and conducting regular training programmes for library professionals are essential for achieving complete automation¹⁵.

Suggestions: Complete automation of the remaining non-automated libraries should be prioritised through financial assistance and technical guidance from the university and

government agencies. College managements should prioritise complete library automation through adequate funding and technical support¹⁶. Regular training programmes should be organised to enhance ICT competencies among library professionals¹⁷. Adoption of open-source software such as Koha should be encouraged to ensure sustainability and cost-effectiveness¹⁸. Improved internet connectivity and cloud-based solutions should be implemented to support advanced ICT-based library services. By implementing these recommendations, college libraries can achieve a fully automated, ICT-integrated environment that promotes knowledge access and learning efficiency.

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