International Journal for Rapid Research in Engineering Technology & Applied Science (IJRRETAS)

(Peer-Reviewed, Open Access, Fully Refereed International Journal)

Volume 12 issue 01 January 2026 OPEN ACCESS E-ISSN: 2455-4723 Impact Factor 7.95

Library Automation and Ict Applications in College Libraries of The Ncr Region: A Comparative Study of Meerut And Ghaziabad

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Abstract

The rapid advancement of Information and Communication Technology (ICT) has brought significant changes to the organization, administration, retrieval, and dissemination of information within academic libraries. The present study, based on the thesis, investigates the current status of information technology applications and library automation in selected college libraries of Meerut and Ghaziabad. The study aims to assess the level of automation, ICT competencies of library professionals, availability of ICT-enabled resources and services, and the perceptions of library users regarding these facilities.

A descriptive-analytical survey method was employed for the study. A total of twenty college libraries were selected, including eleven libraries from Meerut and nine from Ghaziabad. Structured questionnaires were developed separately for library staff and users, while observations and interviews were also used to supplement the collected information. The data obtained from library professionals and users were analyzed using statistical techniques such as frequency, percentage, mean, ranking, and other relevant measures.

The findings reveal that ICT has become an integral part of library operations; however, the extent of automation and adoption of advanced technologies varies among the selected libraries. Library personnel demonstrated comparatively better proficiency in basic computer applications and Internet-based information searching, whereas technologies and activities such as Radio Frequency Identification (RFID), barcode systems, digital-library development, and other advanced ICT applications require further improvement. The study further highlights the importance of skilled human resources, adequate infrastructure, financial support, effective planning, networking facilities, and appropriate institutional policies for successful automation.

The study concludes that the modernization of college libraries requires a systematic approach to automation supported by continuous professional training, effective resource sharing, development of digital services, improved ICT infrastructure, and appropriate institutional support. These measures can contribute significantly to improving the efficiency, accessibility, and quality of library services in the study area.

Keywords

Library automation; Information and Communication Technology; Academic libraries; College libraries; Meerut; Ghaziabad; ICT skills; OPAC; Digital library; Resource sharing

1. Introduction

Libraries have moved from predominantly print-based collections and manual housekeeping operations toward integrated, networked and digitally supported information environments.

The development of computers, telecommunications, the Internet, electronic publishing, databases and web technologies has expanded the capacity of libraries to store, process, retrieve and disseminate information. In academic institutions, this transformation is particularly important because students, teachers and researchers increasingly require rapid access to current information in multiple formats.

Library automation involves the use of computers, specialized software, and associated technologies to manage and perform various routine as well as intellectual activities of a library. It can be implemented across major library functions, including acquisition, cataloguing, circulation, serials management, information retrieval, and Online Public Access Catalogue (OPAC) services. The adoption of automation minimizes repetitive manual tasks, facilitates faster and more efficient access to bibliographic information, and enables library professionals to focus more effectively on providing user-centred services.

The NCR region provides an important setting for examining library automation, as the libraries included in the study function within an educational environment where users increasingly demand quick access to online information, electronic resources, and efficient digital services. However, the study reveals variations among the selected libraries with respect to ICT infrastructure, availability of personnel, professional skills, and the extent to which modern technologies have been adopted. Accordingly, this paper concentrates on the ICT and library automation aspects of the and presents the relevant findings in a structured research-paper format.

2. Background and Review of Related Literature

The literature reviewed and indicates that library automation and Information and Communication Technology (ICT) have developed continuously in response to changing information needs and technological advancements. In the initial stages, automation was mainly introduced to support individual library activities. With the emergence of integrated library systems, several functions could subsequently be managed through a unified technological platform. The introduction of machine-readable cataloguing, network-based systems, online databases, and web-enabled Online Public Access Catalogues (OPACs) further broadened the applications and scope of library automation.

Various studies included and examined the implementation and use of automation and ICT in different types of libraries and institutional contexts. Suku and Pillai studied the status of automation in university libraries in Kerala, whereas John-Oswald Amekuedee investigated the implementation of library automation in university libraries in Ghana. Haneefa focused on the application of ICT in special libraries in Kerala. Other studies, including those conducted by Ali, Amritpal Kaur, and Rajeev Manhas, examined the use of electronic resources and Internet facilities, highlighting the increasing significance of digital information resources within academic library environments.

The reviewed literature further identifies several challenges associated with the successful implementation of library automation and ICT. These include the availability of adequately trained library professionals, sufficient financial resources, appropriate technological

infrastructure, effective networking facilities, continuous staff training, and institutional support. Although previous studies have addressed different aspects of automation and ICT, there remains a need for a region-specific investigation that examines technological applications, the level of automation, user perceptions, and changing library service patterns. The present study addresses this requirement by focusing on selected college libraries in the Meerut and Ghaziabad region.

3. Objectives of the Study

1. To assess the existing level and extent of automation in the selected college libraries.
2. To examine the level of awareness among teachers and students regarding library automation and its related facilities.
3. To investigate the perceptions of college library users concerning the services and facilities provided by their respective libraries.

4. Research Methodology

A structured questionnaire was used as the principal data-collection instrument. The questionnaires were pilot tested before final administration, and modifications were made on the basis of the pilot study.

Twenty libraries constituted the population of the study: nine libraries from Meerut and eleven from Ghaziabad. Two questionnaires were used: one for library personnel and another for library users, including students/pupils and faculty/staff. The study also used observation of libraries and interviews with senior-level authorities/management to supplement questionnaire data. Data were coded and tabulated using MS Excel and analyzed with SPSS and Excel. Frequency, percentage, mean, ranking and related statistical procedures were used for interpretation.

This lists hypothesis concerning relationships between staff and students in familiarity with automation, staff perceptions of accuracy and productivity, student willingness to use automated services, and relationships between users' computer familiarity and library services. The present paper reports these as research propositions rather than introducing new statistical tests beyond the thesis.

5. Results and Discussion

The staff survey indicates a relatively strong level of basic computer capability. Basic computer skills such as use of MS Office received a high mean score, followed by working with computer software, software installation/customization and computer networking. More advanced areas such as computer security and web-page development were identified as areas where skill patterns differed.

Library-specific IT skills showed a similar pattern. Information searching through the Internet and digitization were prominent, while database management, management of electronic resources, open-source/open-access tools, digital-library or institutional-repository development, barcode technology and RFID were less consistently represented in the staff skill profile.

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This also reports that the available ICT-based resources included desktops, printers, laptops, scanners, CD/DVD/VCD resources, bibliographic databases, full-text databases, search engines, library-related software and statistical databases. OPAC/Web OPAC, social media, computerized indexing/abstracting services, library networking, e-resources and library consortium participation received comparatively lower mean values in the reported resource/service assessment. These results suggest that the basic technological foundation was more widespread than advanced networked and digital services.

Library automation should therefore be understood as more than computer availability. A modern automated environment requires integrated software, reliable networking, trained personnel, electronic-resource access, digital repositories, user education and sustainable technical support. This recommendation emphasizes this broader interpretation.

Dimension	Evidence reported in thesis	Interpretation for automation
Basic computer skills	MS Office mean 4.485 among the reported staff skill table	Strong foundation for routine ICT work
Internet information searching	Mean 4.097 in library-specific IT applications table	Important established skill
Digitization	Mean 4.016	Relatively prominent activity
Database management	Mean 2.952	Further development indicated
Barcode technology	Mean 2.532	Less developed than basic ICT skills
RFID technology	Mean 2.306	Advanced automation area requiring attention
OPAC/Web OPAC	Mean 2.87 in ICT-based resources/services table	Need for broader access and integration
Library networking	Mean 2.71	Scope for stronger inter-library connectivity
E-resources	Mean 2.63	Need to expand electronic-resource provision

6. Major Findings

The major findings relevant to automation and ICT can be summarized as follows:

- Automation and ICT are recognized as important to the functioning and modernization of the surveyed libraries.
- Basic computer skills among library staff are comparatively well established, particularly routine office applications and general software use.

7. Implications for College Library Management

The findings imply that automation planning should be undertaken as a phased institutional programme rather than as the isolated purchase of computers or software. The first stage should ensure reliable hardware, networking, Internet connectivity and basic library-management software. The second stage should strengthen integrated modules such as acquisition, cataloguing, circulation, serial control and OPAC. A further stage can address digital repositories, e-resource management, mobile access, RFID and wider resource-sharing networks.

Staff capacity is equally important. This recommends appointing or developing library professionals with stronger computer qualifications and organizing training in Internet and electronic resources, website maintenance, Web 2.0 and Web 3.0 technologies. User orientation is also necessary because the effectiveness of an automated library depends not only on technical availability but on users' ability to discover and exploit resources.

Financial planning should include maintenance, upgrades, software support, network costs and staff development. This further recommends that institutions participate in appropriate e-resource consortia and cooperate with other libraries to reduce costs and expand access.

8. Recommendations

Based on the recommendations, the following measures are particularly relevant to library automation:

1. Introduce or strengthen a complete library automation system covering acquisition, cataloguing, circulation, periodicals and related housekeeping functions.
2. Improve computer networks, Internet speed and the availability of sufficient terminals.
3. Provide regular training and refresher programmes for library staff in ICT, electronic resources and emerging technologies.

9. Conclusion

The transition from conventional manual procedures to automated, networked, and electronic library services has the potential to enhance the speed, accessibility, and overall efficiency of library operations. However, the adoption of technology differs among institutions and requires continuous organizational support, adequate resources, and systematic planning.

The study demonstrates that effective library automation depends on the coordinated integration of technology, human resources, services, and institutional policies. Merely providing basic computer facilities is not sufficient to establish a fully modern library environment. Integrated automation systems, competent and adequately trained library professionals, dependable networking infrastructure, electronic information resources, digital repositories, user-education programmes, and resource-sharing arrangements must function collectively to achieve effective library services.

In view of these findings, this emphasizes the need for improved ICT infrastructure, regular professional training, adoption of suitable open-source solutions, participation in library consortia, development of digital-library facilities, and formulation of appropriate institutional

policies. The implementation of these measures can provide a systematic framework for strengthening and modernizing college library services in the study area.

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