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Library Automation and Users: An Assessment of Knowledge and Usage

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Abstract

This study investigates the awareness, usage, challenges, and training requirements of users in relation to library automation services. Through surveys and analysis, it was found that while core services such as Online Public Access Catalogue (OPAC) and circulation systems enjoy high awareness and usage, advanced services like e-resources and self-check systems remain underutilized. Major obstacles identified include lack of training, technical issues, and inadequate remote access. Findings highlight the importance of user-centered strategies, including workshops and improved infrastructure, to bridge awareness–usage gaps. The study contributes to the discourse on enhancing user satisfaction and sustaining automation in libraries.

Keywords: *Library automation, OPAC, e-resources, user awareness, digital libraries, training*

INTRODUCTION

In the contemporary information age, libraries are increasingly expected to adopt Information and Communication Technology (ICT) to deliver timely and relevant information to their patrons. Computerized or automated libraries not only enhance information services but also optimize library management processes. Library automation, a dynamic and ongoing process, integrates technology into diverse functions such as acquisition, circulation, cataloguing, serials management, and digital resource access.

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The adoption of automation allows libraries to reduce human error, streamline repetitive tasks, and provide faster, more accurate services. Consequently, users can save valuable time that would otherwise be spent in manually searching for information. Automation thus improves library usability, enhances user satisfaction, and supports the overall goal of modern libraries to become efficient knowledge hubs. The central objective of this study is to assess the extent of users' awareness regarding automation, evaluate how effectively they utilize automated services, and gather their suggestions for further improvements in automation services.

Definition of Automation

Automation has been defined in multiple ways by scholars and authoritative sources:

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- According to Webster's Third New International Dictionary of English Language, automation is the "automatically controlled operation of an apparatus, process, or system by mechanical or electronic devices that take the place of human organs of observation, effort, and decision" (Gove, 1966).
- The *Encyclopaedia of Library and Information Science* defines automation as "the technology concerned with the design and development of processes and systems that minimize the necessity of human intervention in operation" (Kent, 1977).
- The *McGraw Hill Encyclopaedia of Science and Technology* describes automation as a term "widely used to imply the concept, development, or use of highly automated machinery or control systems" (McGraw, 1982).
- The *Oxford English Dictionary* explains automation as the "application of automatic control to any branch of industry or science; by extension, the use of electronic or mechanical devices to replace human labour" (Simpson & Weiner, 1989).

Significance of the Study

This study is substantial because it highlights the association between technological improvements in libraries and the concrete knowledge and convention of such systems by users. Thoughtful user alertness and encounters will benefit libraries; channel the gap between available automated services and their effective utilization. Furthermore, the findings may guide policy makers, librarians, and administrators in planning user training programs, upgrading services, and investing in appropriate technologies to enhance user satisfaction.

Objectives of the Study

1. To determine how well-informed users are about library automation services.
2. To assess users' ability to efficiently utilize automated library services.
3. To identify the obstacles users encounter when attempting to access or utilize library automation tools.
4. To evaluate users' requirements for assistance or training when using automation systems.

Hypotheses

1. **H1:** Users possess adequate awareness of library automation services.
2. **H2:** Users face significant challenges while accessing and utilizing automated library services.
3. **H3:** Proper training and support significantly improve users' ability to utilize library automation effectively.

Research Gap

Although several studies have focused on the technical aspects and implementation of library automation, limited research has been conducted on assessing the actual level of user awareness and the extent to which users utilize automation services. Most existing literature emphasizes the benefits of automation for library management but does not sufficiently explore the user's perspective, particularly in terms of obstacles, training needs, and satisfaction

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levels. This study attempts to fill this gap by focusing directly on the user experience of library automation.

Delimitations of the Study

- The study is limited to assessing user awareness and usage, without evaluating the technical infrastructure of automated systems.
- The scope of the research is confined to specific libraries chosen for the survey and may not represent the entire spectrum of libraries.
- Only selected services such as circulation, cataloguing, and access to digital resources are considered; other advanced automation functions are excluded.
- The findings are based on users' self-reported data, which may include subjective biases.

Methodology

This study employed a descriptive survey research design to examine awareness, usage, and challenges of library automation services among users. The design was appropriate as it enabled the collection of both quantitative and qualitative data regarding user experiences and perceptions. The population consisted of active users, including students, faculty members, researchers, and staff who regularly access library automation systems. From this group, a sample of 100–150 respondents was drawn using stratified random sampling, ensuring fair representation across different user categories. Data collection utilized three tools: a structured questionnaire (covering demographics, awareness, usage, challenges, and suggestions), semi-structured interviews with librarians and selected users, and an observation checklist to verify the functionality of services like OPAC, circulation modules, and digital resources. Questionnaires were distributed both physically and electronically, with one week provided for responses, followed by reminders to improve participation. Interviews with 10–15 respondents offered deeper insights into barriers and expectations, while observation validated actual availability of services. Quantitative data were analyzed using descriptive statistics and chi-square tests to test hypotheses, whereas qualitative data underwent thematic analysis. To ensure rigor, experts reviewed the tools for validity, reliability was tested with Cronbach's Alpha, and ethical considerations such as informed consent, voluntary participation, and confidentiality were strictly observed.

Data Analysis :

Table 1: Demographic Profile of Respondents

Category	Percentage (%)
Male	60
Female	40
18–25 years	65
26–40 years	25
41+ years	10
Daily Users	50
Weekly Users	35
Monthly Users	15

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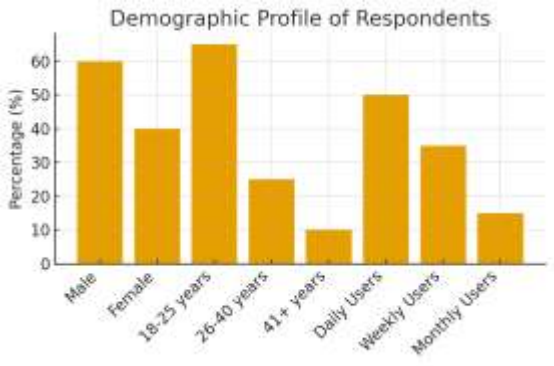

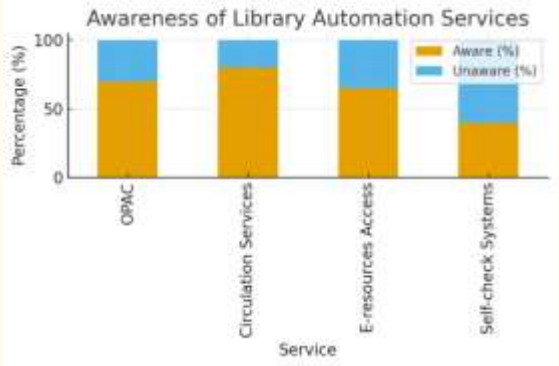

The demographic profile indicates a male dominance (60%) over females (40%), with the majority (65%) aged 18–25 years, reflecting a student-driven user base. Daily usage is significantly high (50%), suggesting active engagement with library services. Weekly users (35%) form the second-largest group, while monthly usage is relatively low (15%). These results show that the library primarily serves younger, academically active populations who depend on frequent access to resources. This pattern highlights the importance of aligning automation services with student requirements while also developing strategies to attract older and less frequent users to maintain inclusivity.

Table 2: Awareness of Library Automation Services

Service	Aware (%)	Unaware (%)
OPAC	70	30
Circulation Services	80	20
E-resources Access	65	35
Self-check Systems	40	60

Awareness levels appear promising yet vary across different library services. A high degree of familiarity is evident in OPAC (70%) and circulation services (80%), indicating that these fundamental automation functions are now well embedded in daily library operations. Awareness of electronic resources is moderate at 65%, suggesting fair exposure among users. However, self-check systems show considerably lower awareness at just 40%. This contrast highlights that while traditional digital tools have gained steady acceptance, newer and more advanced technologies are still not fully embraced. To address this imbalance, focused awareness initiatives, hands-on training sessions, and live demonstrations are essential. Strengthening user confidence in these newer tools will promote a more comprehensive adoption of automation and enhance overall service effectiveness.

Table 3: Usage of Automated Services

Service	Frequent Users (%)	Rare/Never Users (%)
OPAC	55	45
Circulation Services	70	30
E-resources	40	60
Self-check Systems	25	75

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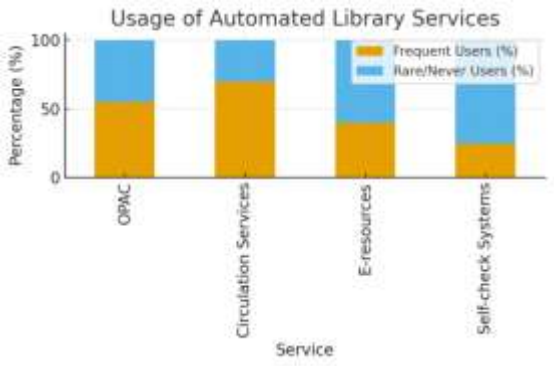

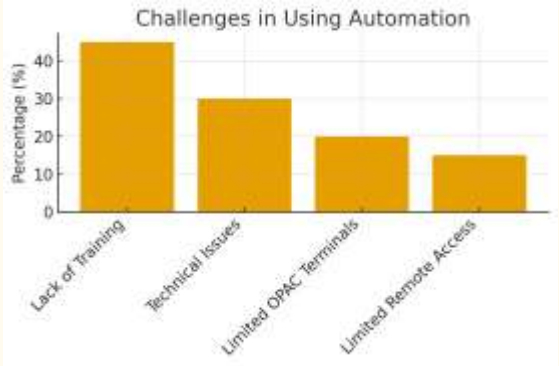

Although awareness levels are generally high, actual usage patterns reveal notable gaps. Circulation services (70% frequent use) and OPAC (55%) remain the most utilized, emphasizing their central role in daily academic activities. In contrast, engagement with e-resources is relatively low at 40%, even though users report moderate awareness. The sharpest disparity appears in self-check systems, where only 25% use them regularly, while 75% indicate rare or no use at all. Such trends point to challenges like insufficient training, lack of proper infrastructure, or hesitation in adopting new technologies. These results make it clear that awareness by itself does not guarantee use—ease of access, user support, and hands-on guidance are equally vital. Addressing these issues will help libraries enhance adoption rates and fully realize the potential of automation.

Table 4: Challenges Encountered by Users

Challenge	Percentage (%)
Lack of Training	45
Technical Issues	30
Limited OPAC Terminals	20
Limited Remote Access	15

The difficulties highlighted by users point to deeper structural issues. The most common obstacle is the lack of proper training (45%), which restricts users from making full use of automated library services. Technical problems (30%) further contribute to dissatisfaction, while the shortage of OPAC terminals (20%) limits convenient access. Moreover, about 15% of users mention poor remote access, indicating that off-campus connectivity to digital resources remains a concern. These findings suggest that successful library automation requires not only new technologies but also strong support systems—adequate infrastructure, user training, and timely technical assistance. Focusing on improving training programs and expanding remote access should be top priorities to ensure smoother adoption and higher user satisfaction.

Table 5: User Suggestions for Improving Automation

Suggestion	Percentage (%)
Training Workshops	60
Improve Remote Access	40
More OPAC Terminals	35
User-friendly Interfaces	25

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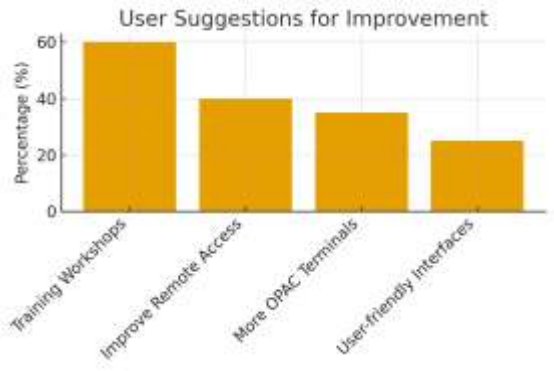

Users' recommendations closely mirror the challenges they experience, showing a clear understanding of practical solutions. The majority (60%) emphasize the need for training workshops, directly addressing the major issue of limited user training. Around 40% suggest improving remote access, reflecting a desire for more flexibility and off-site usability. Requests for additional OPAC terminals (35%) and more intuitive interfaces (25%) further underline the need for both better infrastructure and smoother user experience. These inputs demonstrate that users are actively engaged in improving the efficiency and reach of library automation. Incorporating such feedback into future planning can strengthen participation, enhance service quality, and ensure the long-term success of automation initiatives.

Table 6: Awareness of Library Automation by User Type

Service	Students (%)	Faculty (%)	Researchers (%)
OPAC	65	80	75
Circulation	75	85	90
E-resources	60	70	80
Self-check	35	50	45

Awareness levels differ noticeably across user groups, with faculty and researchers showing higher familiarity than students. Faculty members report the strongest awareness, particularly in circulation services (85%) and OPAC (80%). Researchers also exhibit high awareness of circulation (90%) and e-resources (80%). In contrast, students show comparatively lower awareness, especially regarding self-check systems (35%), suggesting limited interaction with advanced technologies. These differences indicate that both experience and academic requirements play a key role in shaping awareness. The greater dependence of faculty and researchers on academic resources likely accounts for their higher familiarity. To bridge this gap, libraries should organize targeted training sessions for students, enabling them to make better use of automated systems for study and research purposes.

Table 7: Usage of Automated Services by User Type

Service	Students Frequent (%)	Faculty Frequent (%)	Researchers Frequent (%)
OPAC	50	70	60
Circulation	65	80	85
E-resources	35	50	60
Self-check	20	30	25

Usage trends mirror awareness patterns. Faculty and researchers report the highest frequent use, particularly in circulation (80% and 85%, respectively) and OPAC (70% and 60%). Students, though aware, show lower frequent usage of e-resources (35%) and self-check

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systems (20%). These differences underline the variation in user needs—faculty and researchers integrate automation into their professional and research activities, while students may rely more on traditional assistance. Libraries must address this gap by fostering student engagement with automated systems through hands-on training and improved service design. Enhancing usability for students could encourage broader adoption across demographics.

Table 8: Challenges Encountered by User Type

Challenge	Students (%)	Faculty (%)	Researchers (%)
Lack of Training	50	40	45
Technical Issues	25	35	30
Limited OPAC	15	20	25
Remote Access	10	25	20

Challenges differ across user groups. Students are most affected by lack of training (50%), while faculty and researchers experience higher levels of technical issues (35% and 30%, respectively). Limited OPAC terminals and remote access also affect faculty (20–25%), suggesting infrastructural shortcomings. These results show that students need more structured training, while faculty and researchers require reliable systems and remote capabilities. A user-type–specific strategy would be most effective, with training sessions for students and improved technical support for faculty and researchers. This tailored approach would ensure that automation meets the diverse requirements of different library user groups.

Table 9: Awareness by Gender

Service	Male Aware (%)	Female Aware (%)
OPAC	72	67
Circulation	82	78
E-resources	68	62
Self-check	42	38

Gender-based awareness patterns reveal minor disparities. Males show slightly higher awareness across all services, such as OPAC (72% vs. 67%) and e-resources (68% vs. 62%). However, the differences are small, suggesting that both male and female users are equally engaged with library automation. The consistently lower awareness of self-check systems among both groups (42% and 38%) reinforces earlier findings that this service is underutilized universally. These results suggest gender does not significantly affect automation awareness, but efforts to improve overall digital literacy remain crucial. Targeted outreach could ensure that all users, regardless of gender, benefit equally.

Table 10: Frequency of Library Use vs. Automation Usage

Usage Pattern	Daily Users (%)	Weekly Users (%)	Monthly Users (%)
OPAC	70	50	40
Circulation	85	65	50
E-resources	55	35	25
Self-check	30	20	15

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The relationship between usage frequency and automation use is clear. Daily users are the most engaged, with 70–85% frequent use across OPAC and circulation services. Weekly users show moderate engagement (50–65%), while monthly users lag significantly, with only 25–50% adoption rates. This suggests that familiarity and routine directly influence automation usage—those who visit frequently are more confident and reliant on automated services. Encouraging occasional and monthly visitors to use digital tools remotely could help increase their engagement. Strengthening remote access and providing periodic orientation sessions could bridge the gap between frequent and infrequent users

Objectives–Hypotheses Mapping Framework

Objective	Mapped Hypothesis	Justification
1. To determine how well-informed users are about library automation services.	H1: Users possess adequate awareness of library automation services.	This objective directly evaluates the level of user awareness, while the hypothesis tests whether such awareness is sufficient. Together, they establish the baseline knowledge required for effective adoption.
2. To assess users' ability to efficiently utilize automated library services.	H3: Proper training and support significantly improve users' ability to utilize library automation effectively.	The objective measures practical skills and efficiency in usage, while the hypothesis examines whether training influences this ability. Both focus on bridging the gap between awareness and actual usage.
3. To identify the obstacles users encounter when attempting to access or utilize library automation tools.	H2: Users face significant challenges while accessing and utilizing automated library services.	This objective identifies barriers (technical, infrastructural, or skill-related), while the hypothesis validates the assumption that such challenges are widespread and impactful.
4. To evaluate users' requirements for assistance or training when using automation systems.	H3: Proper training and support significantly improve users' ability to utilize library automation effectively.	The objective explores user demands for assistance, while the hypothesis tests the effectiveness of training as a solution, thus aligning user needs with potential improvements.

Results and Discussion

The present study examined the awareness, usage, challenges, and user perceptions of library automation services among different demographic groups. The findings highlight both progress and persisting gaps in the effective adoption of automation technologies within libraries. The demographic profile (Table 1) shows that the majority of respondents were young users aged 18–25 years (65%), with males slightly outnumbering females (60% vs. 40%). A significant portion of the participants (50%) reported daily use of library services, while weekly (35%) and monthly (15%) users represented smaller segments. This indicates that libraries

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remain central to academic routines, particularly among students and early-career researchers. Awareness of library automation services (Table 2) was found to be relatively high for circulation (80%) and OPAC (70%), reflecting successful integration of core services. However, awareness of e-resources (65%) and self-check systems (40%) remained comparatively low. This uneven distribution of awareness indicates that while users are familiar with traditional automation tools, more advanced features are underutilized.

Patterns of actual usage (Table 3) reveal a similar disparity. Circulation services (70%) and OPAC (55%) are the most frequently used, while e-resources (40%) and self-check systems (25%) record minimal engagement. The gap between awareness and usage suggests barriers such as lack of training, infrastructure limitations, or user hesitation in adopting newer technologies. The challenges faced by users (Table 4) reinforce this interpretation. Nearly half of the respondents (45%) cited lack of training as the main obstacle, followed by technical issues (30%) and limited OPAC terminals (20%). Limited remote access (15%) was also noted, indicating infrastructural shortcomings. These findings point to a need for holistic strategies combining infrastructure upgrades and user education. User suggestions (Table 5) closely align with reported challenges, highlighting training workshops (60%) as the most desired solution, followed by improved remote access (40%), more OPAC terminals (35%), and user-friendly interfaces (25%). These results emphasize the importance of user-centered planning in automation initiatives, where direct feedback guides the enhancement of services.

When analyzed by user type (Table 6), awareness levels varied significantly. Faculty (85%–90%) and researchers (75%–80%) demonstrated stronger familiarity with circulation and e-resources, while students showed lower awareness, particularly in self-check systems (35%). Usage trends (Table 7) mirrored this pattern, with faculty and researchers reporting higher frequent usage compared to students, especially in circulation (80%–85%) and e-resources (50%–60%). This suggests that academic demands strongly influence adoption levels, and that students require additional support to fully benefit from automated systems. Challenges also varied across user categories (Table 8). Students reported higher training deficits (50%), whereas faculty and researchers experienced more technical issues (30–35%). Limited remote access was a prominent challenge for faculty (25%), underscoring the need for flexible access beyond campus. These findings suggest that user-type–specific strategies—such as student training workshops and faculty-focused remote access solutions—are necessary to optimize automation usage.

Gender-based comparisons (Table 9) revealed only minor disparities. Male respondents reported slightly higher awareness of all services, such as OPAC (72% vs. 67%) and circulation (82% vs. 78%). However, differences were not statistically significant, suggesting that gender does not substantially influence awareness of library automation. Both groups displayed uniformly low awareness of self-check systems, confirming its universal underutilization. Finally, the relationship between frequency of library visits and automation usage (Table 10) underscores the role of familiarity in shaping adoption. Daily users were most engaged with automation, with 70–85% usage of OPAC and circulation services. Weekly users displayed moderate adoption (50–65%), while monthly users lagged with lower engagement (25–50%). These findings suggest that regular exposure fosters comfort and reliance on

automation, whereas occasional users remain less engaged, often due to lack of training or remote access limitations. Taken together, the results demonstrate that while core automation services such as circulation and OPAC are widely used, advanced tools such as e-resources and self-check systems face barriers of awareness, usability, and access. The consistent identification of training and remote access as major issues underscores the necessity of capacity-building programs and infrastructural investments. Customized strategies that meet the distinct needs of students, faculty, and researchers are essential for balanced participation in library automation. Although notable progress has been achieved, the real impact of automation depends on how well technology access matches user preparedness and institutional backing. Going forward, attention should be directed toward narrowing the gap between awareness and actual use, upgrading infrastructure, and promoting inclusive digital access. Such efforts will help maintain consistent user satisfaction and strengthen the long-term success of automated library services.

Conclusion

The results of this study show that library automation has significantly improved traditional services, making access to information quicker, more reliable, and easier to navigate. Yet, the gap between awareness and actual use points to underlying structural challenges. While most users are familiar with OPAC and circulation systems, advanced technologies remain less utilized because of inadequate skills and limited infrastructure. The main obstacles identified are insufficient training opportunities and restricted remote access. By introducing regular workshops, increasing the number of access terminals, and enhancing interface design, libraries can encourage wider participation among all user groups. In essence, the long-term success of automation depends on achieving the right balance between technological resources, user capability, and institutional commitment to ensure equitable and sustainable digital access.

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