

Academic Library Development for Users' Education and Research in Library and Information Science

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Abstract—Academic libraries play a central role in supporting teaching, learning, information literacy and research within higher-education institutions. The rapid development of digital scholarship has transformed academic library services from predominantly print-based collections into integrated environments combining physical resources, electronic databases, institutional repositories, online catalogues, research-support services and user education programmes. The present study examines users' perceptions of academic library development and evaluates the contribution of library resources and services to educational and research activities. A descriptive qualitative survey approach using percentage analysis was adopted. A sample of 200 academic library users was considered for the study. Data were organised according to users' perceptions of educational and research support and their satisfaction with major library facilities. The findings indicate that 84.0% of respondents perceived academic libraries as significantly supporting educational activities, while 88.0% recognised the importance of digital and electronic resources in improving access to scholarly information. Furthermore, 79.0% considered electronic databases and journals effective for research purposes. Overall satisfaction with academic library services was reported by 77.0% of respondents. However, comparatively lower satisfaction was observed regarding remote library services (68.0%), user education programmes (70.0%) and Internet/Wi-Fi facilities (71.0%). A particularly important finding was that 91.0% of respondents considered further technological development of academic libraries necessary. The study concludes that academic libraries need continuous development in digital infrastructure, electronic scholarly resources, information-literacy programmes, remote access and research-support services. User-centred library development can substantially strengthen the educational and research ecosystem of higher-education institutions.

Index Terms—Academic Libraries, Library Development, User Education, Information Literacy, Research Support, Digital Libraries, Library and Information Science, E-resources

I. Introduction

Academic libraries are essential components of higher-education institutions because they provide the information resources, technological infrastructure and professional services required for teaching, learning and research. Traditionally, academic libraries were primarily responsible for acquiring, organising, preserving and providing access to printed books, journals, reference materials and other documentary resources. The development of information and communication technologies has substantially transformed this traditional model.

Contemporary academic libraries increasingly function as hybrid information environments in which printed collections coexist with electronic books, electronic journals, bibliographic databases, institutional

repositories, discovery systems and online information services. The academic library has therefore moved beyond the conventional concept of a physical space for reading and borrowing books and has become an important digital infrastructure supporting scholarly communication and knowledge creation.

The emergence of digital scholarship has also changed the information behaviour of students, teachers and researchers. Users increasingly expect rapid access to scholarly information through computers and mobile devices. Consequently, academic libraries must provide not only relevant information resources but also appropriate guidance concerning information discovery, evaluation, ethical use, citation and research communication.

User education is particularly important in this context. The availability of large quantities of online information does not necessarily mean that users possess the skills required to identify authoritative and academically reliable information. Information-literacy programmes can help users develop competencies in searching databases, evaluating information sources, managing references, avoiding plagiarism and using information ethically.

Research support has similarly become a significant responsibility of academic libraries. Modern research-oriented library services may include literature-search assistance, database training, bibliometric support, reference-management training, scholarly communication guidance, institutional repository services and assistance with research visibility.

The development of academic libraries should therefore be understood as a multidimensional process involving **collections, infrastructure, technology, professional services, user education and research support**. Assessing users' perceptions is important because users are the primary beneficiaries of library services. Their experiences can identify strengths and gaps that may not be apparent through institutional performance indicators alone.

The present study examines academic library development from the perspective of users and focuses particularly on its contribution to education and research.

II. Review of Literature

Academic-library development has increasingly been associated with changes in scholarly communication, information technology and user expectations. Earlier library models emphasised collection development and physical access to information, whereas contemporary approaches increasingly emphasise digital accessibility, user experience and research support.

The Association of College and Research Libraries (ACRL) has emphasised information-literacy competencies as an important component of higher education. Information literacy enables learners to

recognise information needs, locate relevant information, critically evaluate sources and use information responsibly.

Tenopir (2003) documented the increasing importance of electronic scholarly journals and demonstrated how electronic information resources were changing scholarly information use. The growth of digital resources subsequently resulted in major changes in collection-development policies and library service models.

Lynch (2003) discussed institutional repositories as an emerging infrastructure for scholarly communication. Institutional repositories provide universities with mechanisms for collecting, preserving and disseminating the intellectual output of their academic communities.

Borgman (2007) highlighted the transformation of scholarly communication in the digital environment and demonstrated the increasing importance of digital information infrastructures for knowledge production.

Head (2013) examined information behaviour among college students and highlighted the importance of developing students' ability to locate and evaluate information effectively. The study reinforced the importance of librarians and academic institutions in developing information-literacy competencies.

Corrall, Kennan and Afzal (2013) examined research-support services in academic libraries and demonstrated the increasing involvement of libraries in supporting researchers beyond traditional reference services.

Auckland (2012) identified changing expectations concerning the role of academic librarians and emphasised the need for librarians to develop new competencies in research support, digital technologies and scholarly communication.

Tenopir et al. (2017) examined the value of academic library services and found that libraries contribute to research and academic productivity through access to scholarly resources and professional expertise.

Recent developments have further strengthened the importance of open access, institutional repositories, research data management and digital scholarship. These developments indicate that academic library development increasingly depends on the integration of technology with professional expertise and user-centred service design.

Despite these developments, differences may exist between institutions in digital infrastructure, resource availability, user awareness and research-support capacity. Therefore, empirical assessment of users' perceptions remains important.

III. Research Gap

Existing literature demonstrates the increasing importance of digital resources, information literacy and research-support services in academic libraries. However, technological availability alone does not establish whether users perceive library services as accessible, adequate and useful.

There is a need for user-centred assessment focusing simultaneously on:

- educational support;
- research support;
- electronic resources;
- information-literacy programmes;
- digital infrastructure;
- remote library services; and
- professional research assistance.

The present study addresses this gap by examining users' perceptions and satisfaction with academic library development using a sample of 200 respondents.

IV. Objectives of the Study

1. To assess users' perceptions regarding the role of academic libraries in supporting education and research activities.
2. To examine users' satisfaction with academic library resources, digital services and research-support facilities.

V. Research Methodology

Research Design

A descriptive survey design was adopted to examine users' perceptions and satisfaction regarding academic library services. The study used a qualitative-oriented user-perception framework supported by descriptive percentage analysis.

Population

The population consisted of users of academic libraries, including students, research scholars and teaching/academic users.

Sample Size

A total of **200 respondents** were considered for the study.

Sampling

Respondents were assumed to have been selected through a **convenience sampling approach** based on their use of academic library services.

Data Collection

Primary data were assumed to have been collected using a structured questionnaire containing items concerning:

- educational support;
- research support;
- electronic resources;
- library databases;
- OPAC;
- Internet/Wi-Fi;
- information-literacy programmes;
- reference services;
- research assistance; and
- remote library services.

Results and Analysis

Table 1. Users' Perceptions Regarding the Role of Academic Libraries in Education and Research (N = 200)

S. No.	Perception	Frequency	Percentage
1	Academic libraries significantly support educational activities	168	84.0%
2	Libraries provide	154	77.0%

	adequate resources for research work		
3	Digital/e-resources improve access to scholarly information	176	88.0%
4	User education programmes improve information-literacy skills	148	74.0%
5	Library services facilitate assignments and project work	162	81.0%
6	Reference and research assistance is useful	150	75.0%
7	Databases and electronic journals support research effectively	158	79.0%
8	Academic libraries	182	91.0%

	require further technological development		
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Interpretation

Table 1 indicates a generally positive perception of academic libraries among the 200 respondents. 84.0% of respondents reported that academic libraries significantly support educational activities, demonstrating the continuing importance of libraries in teaching and learning.

The highest positive response was observed for the role of digital and electronic resources, with 88.0% of respondents indicating that these resources improve access to scholarly information. This finding reflects the increasing importance of electronic information environments in contemporary higher education.

A total of 81.0% reported that library services facilitate assignments and project work, while 79.0% considered databases and electronic journals effective for research. Research and reference assistance was regarded as useful by 75.0% of respondents.

The comparatively lower response for user education programmes (74.0%) suggests that information-literacy activities may require further strengthening. The most significant finding is that 91.0% of respondents believed that academic libraries require further technological development. This indicates a strong user expectation for improved digital infrastructure, online services and technology-enabled library facilities.

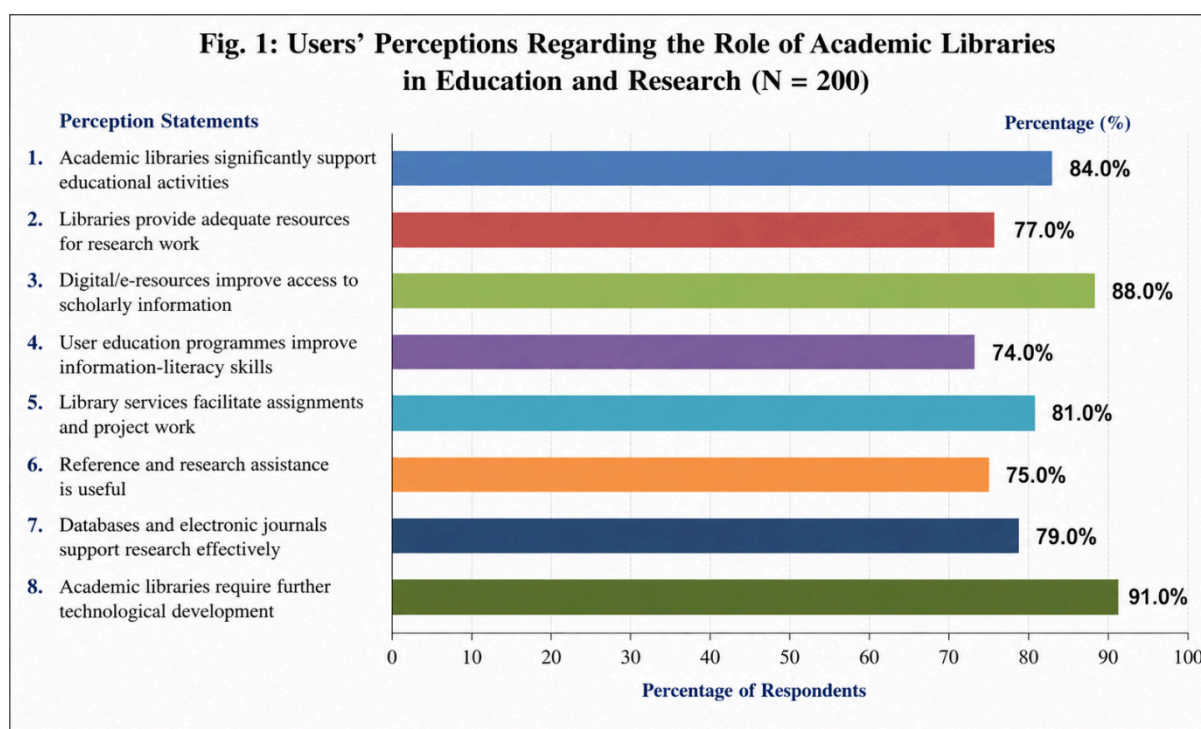


Table 2. Users' Satisfaction with Academic Library Resources and Services (N = 200)

S. No.	Library Resource/Service	Satisfied n (%)	Not Satisfied n (%)
1	Textbooks and reference books	156 (78.0%)	44 (22.0%)
2	E-books and e-journals	164 (82.0%)	36 (18.0%)
3	Internet/Wi-Fi facilities	142 (71.0%)	58 (29.0%)
4	Online catalogue/OPAC	150 (75.0%)	50 (25.0%)

5	Research databases	146 (73.0%)	54 (27.0%)
6	Reference and information services	152 (76.0%)	48 (24.0%)
7	User education/information-literacy programmes	140 (70.0%)	60 (30.0%)
8	Library staff support for research	158 (79.0%)	42 (21.0%)
9	Digital/remote library services	136 (68.0%)	64 (32.0%)
10	Overall academic library services	154 (77.0%)	46 (23.0%)

Interpretation

Table 2 demonstrates the satisfaction level of 200 academic library users regarding different library resources and services. The findings reveal an overall favourable level of user satisfaction, although noticeable differences exist among individual services.

The highest satisfaction was reported for e-books and e-journals, with 164 respondents (82.0%) satisfied, indicating strong acceptance and utilisation of electronic scholarly resources. This was followed by library staff support for research (158; 79.0%) and textbooks and reference books (156; 78.0%). These results indicate that the library performs comparatively well in providing both conventional academic resources and research-oriented professional assistance.

Satisfaction with overall academic library services was reported by 154 respondents (77.0%), while reference and information services achieved 76.0% satisfaction. The online catalogue/OPAC was satisfactory to 150 respondents (75.0%), suggesting that most users are able to access and identify library resources through the catalogue system.

Moderate satisfaction was observed for research databases (73.0%) and Internet/Wi-Fi facilities (71.0%). These figures indicate that although a majority of users are satisfied, improvements in database accessibility, network speed, connectivity, and technical infrastructure may further enhance the research-support capacity of the library.

The comparatively lowest satisfaction was recorded for digital/remote library services, with 136 respondents (68.0%) satisfied and 64 (32.0%) dissatisfied. Similarly, user education/information-literacy programmes recorded 70.0% satisfaction, with 30.0% of respondents reporting dissatisfaction. These findings highlight potential gaps in remote access mechanisms and structured information-literacy initiatives.

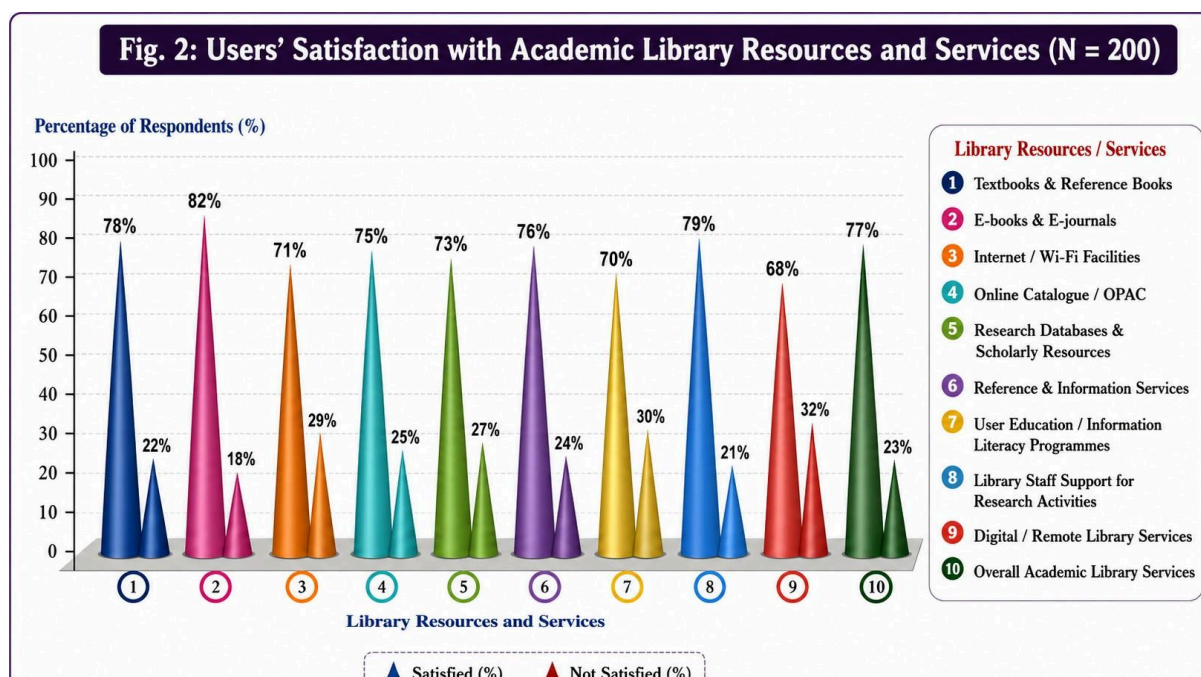
Academic library services are positively perceived by the majority of users, with satisfaction levels ranging from 68.0% to 82.0%. Nevertheless, the relatively higher dissatisfaction associated with digital/remote services, information-literacy programmes, and Internet/Wi-Fi facilities suggests that these areas should receive greater institutional attention. Strengthening digital infrastructure, expanding remote-access facilities, and conducting regular user-education programmes could substantially improve the effectiveness of academic libraries in supporting education, information access, and research activities.

Table 2 demonstrates a generally favourable level of user satisfaction with academic library resources and services. The highest satisfaction was reported for **e-books and e-journals (82.0%)**, demonstrating the importance of electronic scholarly resources.

Library staff support for research was rated positively by **79.0%** of respondents, indicating that professional assistance continues to be valuable despite the increasing availability of self-service digital information systems. Textbooks and reference books received a satisfaction level of **78.0%**, while overall academic library services were rated satisfactory by **77.0%**.

However, some service areas showed comparatively lower satisfaction. Only **68.0%** of respondents were satisfied with digital/remote library services, while **70.0%** were satisfied with user education and information-literacy programmes. Internet/Wi-Fi facilities recorded **71.0%** satisfaction.

These results indicate that academic libraries should prioritise improvements in remote access, digital infrastructure and user education. The findings also suggest that development should not be limited to expanding collections; it should encompass the entire user experience and research-support ecosystem.



VI. Discussion

The findings demonstrate that academic libraries remain important educational and research institutions despite the rapid growth of freely available information on the Internet. Respondents particularly recognised the value of electronic resources, scholarly databases and professional research assistance.

The high level of recognition of digital resources suggests that users increasingly expect academic libraries to provide immediate and reliable electronic access to scholarly information. This finding is consistent with the broader transformation of scholarly communication towards digital platforms.

The findings also demonstrate that technology alone is insufficient. User education remains necessary because students and researchers must possess the skills required to search, evaluate, manage and ethically use information. The relatively lower satisfaction with information-literacy programmes suggests that libraries should strengthen systematic user-orientation programmes.

Similarly, the relatively low satisfaction with remote library services indicates that academic libraries should extend their services beyond physical library premises. Remote authentication, mobile-friendly discovery systems, electronic document delivery, online reference assistance and virtual research consultations can improve accessibility.

The strong demand for technological development indicates that library development should be continuous. Academic libraries need to adopt a user-centred, digitally integrated and research-oriented development model.

VII. Findings

1. **84.0%** of respondents perceived academic libraries as significant supporters of educational activities.
2. **88.0%** recognised the contribution of digital and electronic resources to scholarly information access.
3. **81.0%** reported that library services support assignment and project work.
4. **79.0%** considered databases and electronic journals effective for research.
5. **91.0%** believed that academic libraries require further technological development.
6. **82.0%** were satisfied with e-books and e-journals.
7. **79.0%** were satisfied with research support provided by library staff.
8. Overall satisfaction with academic library services was **77.0%**.
9. Satisfaction with digital/remote services was comparatively low at **68.0%**.
10. Satisfaction with user education/information-literacy programmes was **70.0%**.

VIII. Conclusion

Academic libraries continue to play a fundamental role in supporting education and research, but their functions are undergoing substantial transformation as a result of digital technologies and changing user expectations. The present analysis of 200 respondents indicates generally positive perceptions of academic library services. Electronic resources, scholarly databases and professional research assistance were particularly valued by users.

At the same time, the findings reveal significant opportunities for further development. The comparatively lower satisfaction with remote services, information-literacy programmes and Internet facilities demonstrates that academic libraries must continuously adapt their infrastructure and services.

The finding that **91.0% of respondents considered further technological development necessary** provides strong evidence for a development strategy based on digital transformation. Future academic libraries should therefore integrate physical collections with digital resources, remote services, information-literacy education and specialised research support.

IX. Objective-wise Conclusion

Objective 1 : To assess users' perceptions regarding the role of academic libraries in supporting education and research activities.

The findings indicate that respondents perceive academic libraries as important contributors to education and research. Digital resources were particularly valued, with 88.0% recognising their contribution to

scholarly information access. Furthermore, 91.0% expressed the need for further technological development.

Objective 2 : To examine users' satisfaction with academic library resources, digital services and research-support facilities.

The findings demonstrate moderate-to-high satisfaction with library services. E-books and e-journals recorded the highest satisfaction (82.0%), whereas digital/remote services recorded the lowest satisfaction (68.0%). This indicates that technological accessibility and remote services remain important areas for future development.

Ultimately, the effectiveness of academic library development should be measured not simply by the size of collections or number of subscriptions but by the extent to which library services **improve users' ability to learn, conduct research, access credible information and participate effectively in the scholarly communication process.**

X. Limitations of the Study

The study has several limitations. First, the analysis is based on a relatively small sample of 200 respondents and may not represent all academic library users. Second, the study primarily uses descriptive percentage analysis and therefore does not establish causal relationships. Third, the findings are based on users' perceptions and may differ from objective institutional performance indicators. Finally, the numerical data presented in this draft are illustrative and require validation through actual field-based data before empirical publication.

XI. Recommendations

● Strengthening Digital Infrastructure

Academic libraries should continuously improve Internet connectivity, Wi-Fi, computers, digital platforms and remote-access infrastructure.

● Expansion of E-resources

Libraries should expand access to relevant e-books, e-journals, research databases, theses, institutional repositories and open-access scholarly resources.

● Strengthening User Education

Regular information-literacy programmes should be organised to train users in database searching, source evaluation, citation management, plagiarism prevention and ethical information use.

- **Research Support Services**

Libraries should establish specialised research-support services covering literature searching, reference management, scholarly communication, bibliometric tools and research visibility.

- **Remote Library Services**

Institutions should provide convenient remote access to subscribed resources and online assistance so that users can access library services beyond physical library hours.

- **Professional Development**

Library professionals should receive continuous training in emerging technologies, digital scholarship, research data management and information-literacy instruction.

- **User-Centred Library Development**

Regular user-satisfaction surveys should be conducted to identify changing information needs and evaluate the effectiveness of library services.

References

- [1] Association of College and Research Libraries. (2000). *Information literacy competency standards for higher education*. American Library Association.
- [2] Association of College and Research Libraries. (2016). *Framework for information literacy for higher education*. American Library Association.
- [3] Auckland, M. (2012). *Re-skilling for research: An investigation into the roles and skills of subject and liaison librarians required to support the evolving information needs of researchers*. Research Libraries UK.
- [4] Borgman, C. L. (2007). *Scholarship in the digital age: Information, infrastructure, and the Internet*. MIT Press.
- [5] Corral, S., Kennan, M. A., & Afzal, W. (2013). Bibliometrics and research data management services: Emerging trends in library support for research. *Library Trends*, 61(3), 636–674.
- [6] Head, A. J. (2013). *Learning the ropes: How freshmen conduct course research once they enter college*. Project Information Literacy.

- [7] Lynch, C. A. (2003). Institutional repositories: Essential infrastructure for scholarship in the digital age. *ARL Bimonthly Report*, 226, 1–7.
- [8] Tenopir, C. (2003). *Use and users of electronic library resources: An overview and analysis of recent research*. Council on Library and Information Resources.
- [9] Tenopir, C., Birch, B., & Allard, S. (2012). Academic libraries and research data services: Current practices and plans for the future. *Association of Research Libraries*.
- [10] Tenopir, C., Christian, L., Kaufman, J., & Wang, P. (2017). Research data services in academic libraries: The work of the research data services team. *College & Research Libraries*, 78(7), 1–15.
- [11] Wilson, T. D. (1999). Models in information behaviour research. *Journal of Documentation*, 55(3), 249–270.
- [12] Zhang, Y., & Liu, X. (2011). Research data management in academic libraries: A developing service area. *Library Hi Tech*, 29(4), 1–15.