

User Awareness, Utilization and Satisfaction with Electronic Resources in Government Universities of Haryana, India: A Quantitative Study

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Abstract

The integration of higher education and digital information systems has evolved, highlighting user awareness and satisfaction with electronic resources in universities. The theoretical context of this study concerns how users become aware of and utilise user needs satisfaction with electronic resources in the selected government universities of Haryana, India. A quantitative cross-sectional survey collected 689 valid responses from 1,100 distributed questionnaires. The findings reveal that e-books (91%) and e-journals (88%) are the most recognized resources, with search engines being the preferred tools for access. However, awareness of specialized resources, such as bibliographic databases (63%) and e-standards (59%), is notably low, suggesting opportunities for improvements in library services. Demographic factors such as gender ($p = .009$), age and course level ($p < .001$) significantly influence user engagement and resource utilization patterns. Despite strong overall adoption, disparities among user groups and resource categories necessitate consideration. The study emphasizes the need for targeted educational programs and marketing of underused resources, alongside the regular updating of digital infrastructure to enhance electronic resource provision. The research provides empirical evidence to inform operational and policy development for academic libraries and public higher education institutions.

Keywords: Digital information resources, Electronic resources, User awareness, Utilization patterns, User satisfaction, University libraries, Haryana, User behavior.

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Introduction

A tremendous leap has occurred in information and communication technology over the years, and this has brought about radical changes in academic libraries across the globe. The main collections of print, which were the heritage of libraries, have now become just one facet of their dynamic digital information services. In fact, these days, the main focus of communication among scholars as well as of knowledge dissemination through higher education is on electronic resources like e-journals, e-books, online databases, and institutional repositories. Studies of major scholarly international research works published in reputed journals indexed by Scopus have shown that at present, e-resources have become the most preferred means for acquiring academic information because of their advantages - instant access, availability anywhere, ability to locate the information quickly and embedding in the digital research process workflows (Tenopir et al., 2024; Nicholas et al., 2024). Besides, these studies also reveal that the users of academic libraries are increasingly making demands that they be allowed to have access to information anytime and anywhere without having to depend on the physical presence of the library through the use of technology.

Around the post-COVID-19 period, the academic world has undergone a drastic change in its reliance on digital technology. Use of data shows that the emphasis on the use of e-resources which was a matter of necessity during the pandemic, has brought about a behavioural change of a kind that even after the campuses being physically opened again, the students, research scholars, and faculty still heavily depend on electronic resources (Borrego et al., 2024). The world is witnessing the fact that digital library services have not just proved to be an instrument of information provision but also a means to double the output of researchers, make it easy to conduct hybrid classes, and thus, result in the overall academic performance of students getting better. But all these perks are directly related to the user's level of familiarity, their competency in using digital tools, and naturally, their contentment with the library services (Nicholas et al., 2024).

Besides, many factors influence the use of e-resources for maximum output, as studies have shown. Among other things, these are the quality of infrastructure, ease of access, availability of training programs, and a library support system that is responsive to the users' needs. Additionally, cases of satisfying and high usage have been recorded in

technologically advanced institutions, whereas universities in developing countries are still grappling with the issues of optimising their digital collections (Tenopir et al., 2024). In regions where the government is the major financier of universities, lack of equity both in terms of infrastructure and user assistance can greatly influence the utilization and satisfaction patterns. Therefore, it is becoming more and more important to study user behaviour in certain regional and institutional contexts as one of the elements through which library planning and educational policymaking are backed with evidence.

Academic libraries in India, particularly in Haryana, are experiencing increased use of electronic resources and digital services. However, there is insufficient evidence regarding user utilization and satisfaction within Haryana's government university libraries. Existing literature predominantly focuses on institutions in other Indian states or broad national findings, neglecting the specific institutional and infrastructural context of Haryana. This study's gap has resulted in a lack of region-specific quantitative data needed to assess user engagement with e-resources and services. Previous studies have treated user awareness, usage, and satisfaction as independent variables, failing to explore empirical correlations among these aspects. Furthermore, without comparative analyses among various user groups—such as faculty, research scholars, and students—insight into behavioural variations within the same institution remains limited.

Furthermore, the COVID-19 pandemic has intensified reliance on digital technologies in education; however, empirical studies on government university usage and satisfaction are sparse. This study seeks to comprehensively quantify user awareness, usage, and satisfaction with e-resources and services in government universities of Haryana. Additionally, while the benefits of e-resources and library consortia are acknowledged, research focusing on disadvantaged groups, such as prison inmates, remains minimal. Challenges in user awareness, skill development, and the advocacy of e-resources also lack sufficient study, as does the comparison of user preferences between print and electronic formats. The current paper aspires to address these significant research gaps. Based on it, this study has the following research objectives-

1. To identify the extent of awareness and the level of usage of e-resources and e-services among students, research scholars, and faculty members in government university libraries of Haryana.
2. To explore the frequency and reasons for the usage of different types of e-resources and e-services by various user groups.
3. To assess the overall user satisfaction with different aspects of e-resources and e-services such as their accessibility, usefulness, and ease of use.
4. To analyze the interrelations among the awareness, utilization patterns, and satisfaction of the users of e-resources and e-services.

2. Literature Review

There have been several studies in recent years that indicate academic libraries are becoming increasingly reliant on

electronic resources. These resources are mainly e-journals, e-books, and online databases. The trend is more obvious due to the pandemic, when libraries had to shut down, and their users could only access resources digitally. The sudden change to the pandemic situation made people's behavior in the use of information change rapidly, and it is still changing. In fact, students and researchers are now accustomed to, and continue to prefer, academic content delivered in remote mode (Borrego et al., 2024; Nicholas et al., 2024). One of the findings, among others, is that digital resources are so much 'dependent' on the user's awareness, training, and convenience that they determine whether the resources are used or not, and this is great, getting to the point of how digital resources are compiled and delivered to users.

Almarabeh & Abu-Shanab (2024) and Wang & Zhao (2025) state that research engagement and use of digital library platforms can be significantly increased through a well-planned training program and by making tasks feel easy to perform. In contrast, Tenopir et al. (2024) claim that user satisfaction can be seen as the product of accessibility, interface usability, content relevance, and technical support, and this factor, user satisfaction, is the key to the continued use of digital resources.

However, despite the immense benefits realised in universities and other organisations that have decided to embrace technology, the research points out that these problems still exist and that they are the main causes of underutilization of electronic resources in the publicly funded and state universities. Among the major factors that continue to cause the problem are the ones named to neglect publicly funded universities like infrastructure, slow internet connection, few computer terminals, and lack of digital literacy (Dutta, 2024; Devi, 2024). The studies that have been carried out to demonstrate these points have been documented from different parts of the world. They show that institutional leadership support and co-operation through library consortia, for example, help to control rising costs and allow higher access to premium digital content (Chandere & Singh, 2024; Gupta & Bhatt, 2024). Nevertheless, user awareness and promotional work continue to be weak and therefore resources are still underutilized (Ansah et al., 2023).

Broadly speaking, the literature reflects that digital resources have a great potential to revive education, raise research productivity, and facilitate access to information (Sahu, 2024). However, the reality of problems related to infrastructure, training, awareness, and user support has caused the non-realization of their full potential. Most of the literature has laid those components as separate or independent entities. Only few, if any, are quantitative comparative studies in specific regions and especially in state universities, which combine three factors' impacts. The gap in the literature emphasizes the study of awareness, utilization and user satisfaction interaction as the foundation of e-resources management and decision-making in service delivery.

Many researchers have recognized the benefits that e-resources and library consortia can bring, but only a

handful of studies have been conducted on the availability of these resources for disadvantaged groups such as prison inmates. Besides, there is a lack of research on user awareness, skill development challenges, and the efficient promotion of e-resources. Moreover, only a few comparative studies have been done on user preference for print versus electronic resources. Besides that, there is a need to highlight more the breaking of changing and infrastructural problems faced by developing countries. The present paper aims at filling those gaps.

3. Research Methodology

3.1 Research Design

This research has used descriptive and quantitative methods to evaluate users' knowledge, utilisation habits and satisfaction with electronic resources and services in the government libraries of Haryana universities. Since the survey is experimental in nature and allows data to be collected from different groups of users, it includes the diversity of the population in general and, through their responses, enables statistical relationships between variables to be analysed. The researchers used it as a tool for data collection. Researchers obtained data at a single point in time (cross-sectional) when they collected the responses of the subjects.

3.2 Population and sample

The target population of the study comprised students, faculty members, and research scholars from the selected government universities in Haryana. These different groups were selected because they are the ones who depend the most on the use of electronic resources and the digital library services, and hence they are the main beneficiaries. To have the representation of the above-mentioned user categories and academic disciplines, the lottery method was used. The final group of respondents who regularly used the university library and were familiar with e-resources and e-services was selected as the sample.

3.3 Instrument of Data Collection

Data collection was done through a structured questionnaire which was designed to elicit numerical responses mainly on the topics of user awareness, user, and satisfaction, among others. The questionnaire covered a number of issues or topics such as demographics, library usage, awareness of e-resources and e-services, frequency, and reasons for usage, issue of access to e-resources, satisfaction, etc., and was divided into sections. However, in most cases, questions were of closed type and were rated using nominal and Likert scales whereby the researcher would be able to subject them to statistical treatment. To get the maximum number of responses, the questionnaire was administered in both its paper and electronic form.

3.4 Research Variables

Three major categories of variables were considered in the study. Apart from the user category mentioned earlier (student, research scholar or faculty), gender, and awareness of e-resources, the independent variables also included other user characteristics that might have an impact on the dependent variables. Apart from utilization patterns (frequency and purpose of use), and the user's satisfaction with e-resources and e-services, the dependent

variables were also affected by other variables that were not mentioned in the given text. The control variables were related to access factors such as the availability of an internet connection, the location of access, and the participation of users in training programs.

3.5 Hypothesis of the study

H₁: Different user groups show significant differences in their awareness and utilization of e-resources and e-services.

H₂: Increasing the frequency of e-resources usage, user satisfaction level will be raised likewise.

H₃: There is a significant positive impact of users' awareness of e-resources on their satisfaction level with e-services.

3.6 Techniques of Data Analysis

The data were analyzed and interpreted with the help of descriptive and inferential statistical methods that made use of SPSS and MS Excel programs. The descriptive statistics, such as ratio, percentage and mean were applied to present the views of users visually. Hypothesis testing in addition to the study of the relationship between variables was done using inferential statistics like Chi-square, correlation, and ANOVA. The point of statistical significance was set at 0.05.

4. Results and Analysis

This chapter discusses the quantitative findings that were derived from the data collected through the user questionnaire. We have analysed user demographics, awareness, usage patterns, satisfaction levels, and problems in using e-resources and e-services through a combination of descriptive and inferential statistical methods.

4.1 Demographic Profile of Respondents

The demographic study shows the respondents were students, research scholars and faculty members of the Government Universities of Haryana. The students constituted the largest portion of the sample, followed by the research scholars and faculty members. The gender breakdown shows that both male and female respondents were represented across all user categories. Respondents represented a wide range of academic disciplines, including sciences, social sciences, humanities, and professional studies. The demographic distribution thus provided a fair representation of the various user groups compared statistically.

4.2 Awareness of E-Resources and E-Services

The examination of the awareness levels shows that a majority of the respondents were familiar with such e-resources which are usually available like e-journals, e-books and online databases. The understanding of national-level resources and digital services among the faculty and research scholars was better than that of students. The statistical test reveals that there is a significant difference between the levels of awareness of different user categories. Table 1 shows the awareness, use, frequency of use and importance's of e-resources in govt. university libraries. Table 2 shows the results of the hypothesis for gender-wise division: male and female. Table 3 shows the age wise results below 20, 21-25, 26-30 and above 30, while Table 4

Results revealed that the technology receiving the most recognition is the search engine Google, with 629 respondents (91%); e-books, with 628 respondents (91%); and e-journals, with 607 respondents (88%). Meanwhile, lower awareness levels were recorded for e-standards (407 respondents; 59%) and bibliographic databases (437 respondents; 63%), indicating the need for targeted awareness initiatives for these specialised resources.

Table 1. Tables show the awareness, use, frequency of use, Importance of e- resources in university libraries.

S . No	Statement (In for mative)	Awareness		Use		Frequency of use				Important			
		Yes	No	Yes	No	Frequently	Sometimes	Rarely	Never	Essential	Somewhat important	Not important	None
1 .	E - Books	628	061	569	120	417	180	058	034	470	171	021	027
2 .	E-Journals	607	082	578	111	442	149	048	053	475	144	031	039
3 .	E-Thesis/ E-Di	540	149	535	154	398	157	071	063	444	154	041	051

Study													
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4.	Engineering Magazines	566	123	500	189	396	175	060	058	405	182	045	057
5.	Newsletters	512	177	495	194	364	180	064	081	372	179	069	069
6.	News papers	560	129	530	159	401	155	073	060	381	179	069	060
7.	Standards	407	291	428	261	349	146	082	122	349	160	087	093
8.	Indexing/Abstracting Databases	475	214	513	176	354	137	100	098	373	162	076	078
9.	Full texts	478	211	514	175	370	126	098	001	421	137	067	064

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Table 2. Table for hypothesis- Gender wise dividing: male and female

S. No.	Variables	Chi-Square Value	Pearson R value	Decision
1.	Awareness	.009	(.038)	0.05> 0.009 [Reject]
2.	Use	.341	(.038)	0.05<0.341 [Accept]
3.	Frequency of use	.338	(.039)	0.05<0.338 [Accept]
4.	Important	.393	(.039)	0.05<0.393 [Accept]

Table 3. According to age wise: Below 20, 21-25, 26-30 and above 30

S. No	Variables	Chi-Square Value	Pearson R value	Decision
1.	Awareness	.083	(0.036)	0.05<0.083 [Accept]
2.	Use	<.001	(0.034)	0.05> 0.001

				[Reject]
3.	Frequency of use	.518	(0.038)	0.05<0.518 [Accept]
4.	Important	.329	(0.038)	0.05<0.329 [Accept]

Table 4. According to Course (Degree) level of education: UG, PG, Research Scholar, Faculty

S. No	Variables	Chi-Square Value	Pearson R value	Decision
1.	Awareness	.117	(.035)	0.05<0.117 [Accept]
2.	Use	<.001	(.034)	0.05> 0.001 [Reject]
3.	Frequency of use	.397	(.036)	0.05<0.397 [Accept]
4.	Important	.182	(.038)	0.05<0.182 [Accept]

4.3 Utilization Pattern of E-Resources

The results reveal that e-journals and online databases are the most frequently used electronic resources. E-books and institutional repositories have lower levels of usage. Different types of users have varied utilization patterns of electronic resources: faculty members and research scholars reported that they used electronic resources very often, whereas students mentioned less frequent use. The majority of electronic resource accesses were carried out through the university network infrastructure; next came the hostel and home remote access facilities.

4.4 Purpose and Frequency of Use

Electronic resources have been utilised primarily for research, writing assignments, teaching and obtaining upto date information. In terms of frequency, distribution a substantial portion of respondents indicated daily or weekly use of e-resources, on the other hand, only a very small portion admitted that they were using e-resources sporadically. These categorical frequency differences are quite strong.

4.5 User Satisfaction with E-Resources and E-Services

User satisfaction gauged through surveys revealed that on the whole users were satisfied with the provision as well as the functionality of the library's electronic resources and e-services. Typically, satisfaction with content and access was quite high. However, among the reasons that were cited as resulting in less than perfect satisfaction levels were internet speed and the absence of user training programmes. It was also found that the level of usage and satisfaction were positively correlated.

The respondents rated the most essential services as search engines (531 respondents), subject-specific portals (487 respondents) and full-text databases (421 respondents). The

least important ratings were given to CD-ROMs/DVDs and bibliographic databases pointing to the transition from physical to online information systems.

4.6 Issues in Using E-Resources

Further, an examination of the data shows that a number of problems are experienced by users when they are accessing e-resources and e-services. Despite this, the vast majority of these issues are very slow internet connectivity, no or insufficient training, very limited access to the subscribed databases, and technical problems at the time of access. The amount of trouble reported varies from one university to another and also between different categories of users.

4.7 Hypothesis Validation Summary

According to the chi-square test we have performed, there is a statistically significant difference in the level at which demographical variables individually determine user engagement with electronic resources. The most significant associations were found to be between gender and awareness ($p = .009$), age and course level with use of electronic resources ($p < .001$). Overall, the hypotheses tested were supported, thereby indicating that demographic factors have a significant effect on the electronic resource usage patterns and also on the perception of their importance.

5. Discussion

The users of the libraries of the government universities of Haryana are very well conversant with and heavy users of electronic resources, as largely revealed by the study findings. The level of awareness of the majority of the users, between 88% and 91%, about e-books and e-journals is very remarkable, besides the great reliance on search engines for carrying out scholarly work. These results are quite in line with the present literature which shows that there has been a constant reliance on digital information sources even after the pandemic. But the low level of awareness of such specialised resources as the bibliographic databases (63%) and e-standards (59%) shows that there are problems with session promotion and user orientation.

The Chi-square tests showed that the demographic factors influence the levels of awareness and the usage patterns as well. There was a statistically significant association between gender and awareness ($p = .009$), whereas the strongest associations age and course level with usage patterns ($p < .001$) were observed, thus implying that the characteristics of the users determine the digital engagement behaviours. The findings of this study are in line with the hypotheses and, additionally, they imply the necessity of carrying out awareness and training campaigns that are suitably designed for different user groups.

6. Conclusion and Recommendations

This research involved a survey study to assess user awareness, patterns of usage, and satisfaction level of e-resources and e-services usage in Government university libraries of Haryana. Quantitative research method was employed to achieve the above goal. Results from the study revealed that electronic resources, mainly e-journals and online databases, are the most popular and the most frequently used among undergraduates, research scholars and faculty for their academic and research work. However,

the level of use and satisfaction are not equal between different user categories. Research scholars and faculty members have a higher level of usage and satisfaction than students. While users, on the whole, report moderate to high levels of satisfaction with e-resources and e-services, issues of infrastructure like low-quality internet connection and lack of proper training are still the major roadblocks in the effective use of these resources. The study also brings to light that awareness, frequency of use and satisfaction are closely connected, hence there is a continuous need for evaluation and improvement of digital library services that are user-oriented. In the wake of the findings, the following suggestions are made-

1. The user education program should be expanded by putting more emphasis on the resources that have less awareness, such as bibliographic databases and e-standards.
2. Regular orientation and refresher workshops must be carried out for students, research scholars and faculty.
3. Library websites, social media and academic departments should be used to give more visibility to the digital services.
4. Smooth service delivery can be ensured through upgrading of the technical infrastructure and remote access systems.
5. Continuous change detection in user needs and service performance improvement can be done by establishing feedback systems that will be continually operational.

6.1 Implications and Limitations of the study

Library administrators may greatly benefit from this study as it provides them with valuable insights and thus, open up the possibilities for service planning based on data and the allocation of funds for staff training. Furthermore, the outcomes of the study highlight the importance of digital infrastructure and workforce development for policymakers. For future researchers, the study offers a regional evidence base concerning user behavior towards electronic resources.

This research primarily deals with the availability, accessibility and usage of electronic resources (e-resources) in a limited number of academic libraries and distance education programs, including the consideration of marginalized groups such as prison inmates. The study is limited to exploring only user behavior, issues and promotion strategies with e-resources in these specific conditions. However, it does not consider all types of libraries in the whole geographical area, therefore the results may not be applicable to other academic institutions. Besides this, it mainly relies on users' self-reported data that can be biased due to inaccurate memory or the wish to conform to social expectations, for instance. There might also be discrepancies in internet connectivity and infrastructure at the various study sites, which could influence the results. However, the research has contributed significantly towards providing better facilities and accessibility of e-resources for use within educational and institutional contexts analogous to those in the study.

6.2 Future scope of the study

This study can be extended in the future by including private as well as central universities for a larger comparison. Changes in user behaviour and satisfaction due to the use of e-resources can be explored through longitudinal studies. In addition, the research may consider combining the use of system usage data or library analytics with survey responses to provide more objective measures of usage. In addition, qualitative methods such as interviews or focus group discussions might be used to get a more detailed understanding of users' perceptions as well as their needs for e-resources and e-services.

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