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## Preservation of Digital Resources in Select Libraries of Forestry Research and Education Institutions in India

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#### Abstract

*The present study examined users' perceptions of the library website, access to web content, and the correlation between web content and website use patterns. This research focuses on three main phenomena: users' awareness, the utilisation of web content on library websites, and users' satisfaction levels. It presents library users frequently use the library websites to access academic information, digital resources as well as online library services but empirical evidence reveals that users who possess higher computer skills have more awareness about e-resources, library services, Web OPAC, remote access tools and e-learning platforms etc. The investigation establishes a positive correlation between active users' involvement and usefulness of library websites. It means that regular interactions with library websites enhance utilisation and satisfaction in the academic community.*

#### Keywords

Women University, Users' Perception, Web Content, Library Website, Correlation

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## INTRODUCTION

Women's universities across India play a pivotal role in advancing higher education, research, and career growth for women (Krishnaraj, 2018). These institutes were established to bridge educational disparities and empower women, with the aim of fostering academic excellence and developing leadership qualities among their students (Wang et al., 2024). Within this institutional framework, university library portals acts as a vital digital gateway. It provides access to scholarly literature, electronic resources and academic support services (Samrgandi, 2020). As higher education rapidly shifts towards online learning, the structural trustworthiness and layout of library websites have become more important than ever. In fact, empirical studies prove that how often students and researchers actually access these portals depends heavily on the quality of the information, ease of navigation and the perception practical use (Silvis et al., 2018). Given the increase of unverified online content which lacks credibility, library portals serves as an essential gateways (Pourjahanshahi et al., 2023). On the other hand, poor website design, confusing navigation and weak user support can seriously hinder users' ability in locating and utilizing digital resources (Rohmiyati et al., 2024). Therefore, it is important that library portals should be built around clear structure, transparency, and user-centered design to reduce misinformation and facilitate efficient information retrieval.

## LITERATURE REVIEW

Several studies have already explored the usability of university libraries' websites, but most focused on common user groups at co-educational institutes (Yerlikaya & Durdu, 2017). Far fewer studies have examined the library websites of women's universities specifically. These educational institutes represent a special group of users with unique information needs, search behavior and preferences, so their library websites may require different design and service priorities to serve users effectively (Alshaheen & Tang, 2022). Because of this difference, library websites of women's universities need separate evaluation based on their specific academic and social background (Kous et al., 2018). Research on this specific type of academic library website often identifies issues such as confusing design, poor navigation and a weak organizational structure. These problems may affect women's universities even more if the websites are not

developed according to the needs of these specific users (Silvis et al., 2018)

In the evaluation of library websites, usability is commonly examined through methods such as think-aloud testing and expert evaluation. However, many studies do not follow standard usability guidelines, making it difficult to compare findings from different studies (Kous et al., 2018). In many cases, gender-related expectations are also ignored, even though they may influence how female users interact with library websites in women-only universities (Alshaheen & Tang, 2022). According to the International Organization for Standardization (ISO), usability is defined as a capable system that can help specific users to achieve their goals effectively and efficiently with satisfaction in a particular situation (Sheikh, 2017).

(Oktaviani et al., 2024) defined usability through three key elements (i) effectiveness, (ii) efficiency and (iii) user satisfaction and by employing these standards, researchers can assess not only the aesthetic aspects of a website but also its capacity to assist users in finding information according to their requirements (Demir & Parraci, 2018). Recent study of (Jilani et al., 2025) suggest that future research on library websites should be focused on identifying the key factors that directly affect usability and performance. Practical tools such as the System Usability Scale are useful for measuring the usability of digital library systems quickly and reliably (Tretow-Fish, 2024). A study by (Alhajri et al., 2021) also suggested that emotional and visual aspects should include as they strongly affect user experience. As per (Prasetya & Rahmi, 2023) proper information structure and simple navigation are both important for users to effectively use of library resources when they locate information is easy way. Therefore, continuous evaluation of library websites is necessary to maintain the usefulness and relevance in the growing digital information environment.

In the research paper (Oyedokun et al., 2021) has recommended the combination of usability testing with content analysis to better understand how website design and information quality impact user engagement. (Silveira, 2025) further suggested that usability assessment should not be limited to the measuring efficiency and effectiveness only but should also include user perceptions and satisfaction to understand the overall user experience. So that, the evaluation of women's university library should involve a combined analysis of content, user satisfaction and performance testing (Hamza et al., 2025).

A mixed-methods research design is considered suitable for this study because it combines quantitative data with users' opinions and experiences which helps in providing a broader understanding of website usability and performance (Tella, 2021). This method is commonly used in website usability studies as it connects technical aspects of websites with the actual experiences of users (Matloobtalab & Ferati, 2025). Such type of evaluation is especially important for present study, where library websites are expected to support teaching, learning, research activities and overall academic development in a user-friendly and supportive environment (Kirana et al., 2025). In addition, accessibility and inclusion should be carefully considered so that all users can access information without difficulty (Waggoner et al., 2025). Finally, adopting user-centered design principles can improve user satisfaction, encourage greater use of library resources and contribute to a stronger academic environment in women's universities (Banu et al., 2024).

## **OBJECTIVE OF THE STUDY**

Based on the literature review above, objective of the study are as follows:

1. To analyse the users' patterns of library website usage.
2. To evaluate the correlation between users' awareness of content available on the library website and patterns of library website usage.
3. To evaluate the correlation between the utilisation of content available on the library website and patterns of library website usage.
4. To assess users' satisfaction level with the content available on the library website.

## **PROCEDURE AND SCOPE OF THE STUDY**

The study covers the 16 exclusively women's universities in India and was conducted from July 2025 to January 2026. List of these universities compiled from the annual reports of various years of the Ministry of Education, AISHE and the UGC online directory portal of HEIs. Out of the 20 women's universities, 16 have functional library websites on their parent universities' websites. Listed women universities present in Appendix-1. These universities are located in different part of India. All universities library have well established library portals which are globally accessible and provides the



number of respondents seemed Below 30 years age group with (48.9%) and (8.4%) were above 50 years of age. In use categories Post Graduate Students constituted the largest group 57.3%, while Faculty Members were 28.1% and Research Scholars were 14.6%.

**Table 1: Demographic Characteristics**

Demographic Characteristics	Variables	Frequency	%
Gender	Female	155	87.1
	Male	23	12.9
Age Group	Below 30	87	48.9
	31-40	42	23.6
	41-50	34	19.1
	Above 50	15	8.4
User Category	Faculty	50	28.1
	Member		
	Post Graduate Student	102	57.3
	Research Scholar	26	14.6

**• Computer Proficiency**

Table 2 identify the computer proficiency level of the respondents, which reveals that the largest group of respondents have basic computer proficiency, 38.76% followed by intermediate-level proficiency 35.96%, while only 10 (5.62%) respondents identified themselves as experts in computer usage and 12 (6.74%), belonged to the beginner category.

**Table 2 Computer Proficiency**

Computer Proficiency	Frequency	%
Advanced	23	12.92
Basic	69	38.76
Beginner	12	6.74
Expert	10	5.62
Intermediate	64	35.96
Grand Total	178	100.00

**• Use of Library Website**

To identify the respondents' pattern of use of the library website, frequency of visits and average time of each visit were presents at Table 3. Regarding the place of access, a slightly higher proportion of 92 (52.2%) respondents accessed the library website from off-campus whereas 85 respondents (47.8%) accessed within the campus. Regarding the frequency of library website visits, highest number of

respondents visited the library website rarely 33.15%, weekly 31.46% and monthly 24.72%. Only 13 (7.30%) respondents visited the library website daily, while 6 respondents (3.37%) stated that they never used the library website. Regarding the question about average time spent on the library website per visit, large number of respondents reported 47.09% spent 5–15 minutes and 22.67% spent 16–30 minutes, while 14.53% spent less than 5 minutes per visit. Very few spent 31–60 minutes (10.47%) or more than one hour (5.23%) on the library website.

**Table 3 Use of Library Website**

Use of Library Website	Variables	Frequency	%
Place of Access of the Library website	In Campus	85	47.8
	Off-Campus	93	52.2
Frequency of the Daily library website visit	Daily	13	7.30
	Monthly	44	24.72
	Rarely	59	33.15
	Weekly	56	31.46
Average Time Spent per Visit to minutes the Library website	Never	6	3.37
	Less than 5	25	14.53
	5-15 minutes	81	47.09
	16-30 minutes	39	22.67
	31-60 minutes	18	10.47
	More than 1 hour	9	5.23

**• Computer Proficiency and Awareness Library Website Content**

Table 4 presents the Spearman's correlation analysis, which was conducted to examine the relationship between the computer proficiency of respondents and their awareness about different types of information available on the library website. The results show that most of the correlation values are positive, which indicates that higher computer proficiency increases users' awareness about library website information. A statistically significant positive correlation was found between computer proficiency and awareness about resources available on the library website ( $r = 0.176$ ,  $p < 0.05$ ), computer proficiency and library services ( $r = 0.180$ ,  $p < 0.05$ ), about e-resources ( $r = 0.119$ ), Web OPAC ( $r = 0.112$ ), remote access tools ( $r = 0.125$ ), e-learning platforms ( $r = 0.096$ ), emerging technologies ( $r = 0.088$ ), Web 2.0 tools ( $r = 0.077$ ),

general information ( $r = 0.023$ ) and physical library collection information ( $r = 0.035$ ). However, these relationships were not statistically significant. Negative correlations were observed with awareness about library sections ( $r = -0.046$ ) and library events ( $r = -0.035$ ). These values are very low, showing almost no relationship between computer proficiency and awareness of these aspects.

**Table 4** Correlation between Computer Proficiency and Awareness of Content available on Library Website

Awareness of Content available on Library Website	Computer Proficiency (n=172)
General Information	0.023
Resources Available	0.176*
Library Collection (Physical)	0.035
E-Resources (Online)	0.119
Library Services	0.180*
Emerging Technologies	0.088
E-Learning Platform	0.096
Web 2.0 tools	0.077
Library Section	-0.046
Web OPAC	0.112
Remote Access	0.125
Library Events	-0.035

Correlation is significant at the 0.05 level (2-tailed). \* ( $p < 0.05$ )

Correlation is significant at the 0.01 level (2-tailed). \*\* ( $p < 0.01$ )

• **Utilization Content Available on the Library Website**

The utilisation level of different types of information and services available on the library website was measured using a five-point Likert rating scale (Never = 1, Rarely = 2, Sometimes = 3, Often = 4, Very Often = 5). Table 5 presents the mean and standard deviation of the frequency of utilization level of 172 respondents. Among all variables, utilization of print resources based on information available on the library website recorded the highest mean score (Mean = 3.21), followed by e-learning platforms (Mean = 3.20), e-resources (Mean = 3.16). These findings suggest that digital learning resources and online academic materials were widely utilized by users. Moderate mean score was general information (Mean = 3.02, SD = 0.741), utilization of library services (Mean = 2.91, SD = 0.782) and emerging technologies (Mean = 2.85, SD = 0.980) showed comparatively lower mean scores. This indicates a moderate level of use for library services and emerging technology among respondents. The

lowest mean score was recorded for utilization of Web 2.0 tools (Mean = 2.76, SD = 0.801), it suggests that respondents were less engaged with Web 2.0 tools available on the library website. Overall, the analysis indicates that respondents mainly utilized print resources, e-learning platforms and e-resources available on the library website, while Web 2.0 tools and emerging technologies were comparatively less utilized.

**Table 5:** Utilization of Information Available on the Library Website

Utilization of Content available on Library Website	Mean	Std. Deviation
General Information	3.02	.741
Print Resources	3.21	.932
E-Resources	3.16	.945
Library Services	2.91	.782
Emerging Technologies	2.85	.980
E-Learning Platform	3.20	.872
Web 2.0 Tools	2.76	.801

• **Correlation between Awareness and Frequency of Website Visit**

Spearman’s correlation analysis was conducted to examine the relationship between awareness about Library Website Information and frequency of visit of library website (See table 6). The results show that the frequency of library website visits was positively correlated with most awareness variables. This indicates that respondents who visited the library website more frequently had greater awareness of the information and services available there. The strongest positive correlation was found between frequency of website visits and awareness about Web OPAC available on the library website ( $r = 0.220, p < 0.01$ ) followed by about Web 2.0 tools ( $r = 0.211, p < 0.01$ ) and awareness about e-resources ( $r = 0.184, p < 0.01$ ). Significant positive relationships were also observed with awareness about e-learning platforms ( $r = 0.173, p < 0.05$ ), emerging technologies ( $r = 0.162, p < 0.05$ ), remote access tools ( $r = 0.160, p < 0.05$ ), library events ( $r = 0.148, p < 0.05$ ), physical library collection information ( $r = 0.144, p < 0.05$ ) and resources available on the library website ( $r = 0.115$ ). The findings indicate that regular visits to the library website improve users’ awareness of the digital resources, services, technologies, and online tools available there.

**Table 6:** Correlation between Awareness about Library Website Information and Frequency of Visit of Library Website

Awareness about Content available on library Website	Frequency of Visit of Library Website
General Information	0.094
Resources	0.115
Library Collection (Physical )	0.144*
E-Resources (Online)	0.184**
Library Services	0.125
Emerging Technologies	0.162*
E-Learning Platform	0.173*
Web 2.0 tools	0.211**
Library Section	0.080
Web OPAC	0.220**
Remote Access Tool Available on Library Website	0.160*
Library Events	0.148*

Correlation is significant at the 0.05 level (2-tailed).

\* ( $p < 0.05$ )

Correlation is significant at the 0.01 level (2-tailed).

\*\* ( $p < 0.01$ )

• **Correlation between Utilization and Library Website Use**

Spearman’s correlation analysis examines the relationship between utilization of library website information and using of library website’s three variables: frequency of visit of library website, time spent per visit and access place. The analysis in table 7 indicates a statistically significant correlation between frequency of visit on library websites and utilization of all web content available on library websites. The highest positive correlation was found between frequency of website visits and utilization e-learning platforms ( $r = 0.641, p < 0.01$ ), followed by library services ( $r = 0.518, p < 0.01$ ), print resources ( $r = 0.432, p < 0.01$ ) and general information ( $r = 0.393, p < 0.01$ ) on the library website. Significant positive relationships were also observed with utilization of e-resources ( $r = 0.274, p < 0.01$ ), emerging technologies ( $r = 0.221, p < 0.01$ ) and Web 2.0 tools ( $r = 0.206, p < 0.01$ ). The findings indicate that users who visit library websites more frequently tend to make better use of the information, resources and services provided through the websites. In terms of time spent per visit, positive and statistically significant relationships were observed with most of content utilization. The strongest positive relationship was found between time spent per visit and utilization of library services ( $r = 0.413, p < 0.01$ ) followed by

Web 2.0 tools ( $r = 0.355, p < 0.01$ ), emerging technologies ( $r = 0.346, p < 0.01$ ), print resources ( $r = 0.299, p < 0.01$ ) and general information ( $r = 0.268, p < 0.01$ ). A moderate positive relationship was also found with e-resources ( $r = 0.187, p < 0.01$ ). However, utilization of e-learning platforms showed a weak negative relationship ( $r = -0.022$ ), which was not statistically significant. Overall, the result suggest that respondents who spent more time on the library website tended to utilize more library services, technologies and information resources through the websites. In terms of access place, significant positive correlations were found with utilization of emerging technologies ( $r = 0.481, p < 0.01$ ), Web 2.0 tools ( $r = 0.376, p < 0.01$ ), library services ( $r = 0.327, p < 0.01$ ), e-resources ( $r = 0.173, p < 0.05$ ) and general information ( $r = 0.130, p < 0.05$ ). These findings indicate strongest positive relationship was observed between access place and utilization of emerging technologies. However, utilization of e-learning platforms ( $r = -0.176, p < 0.05$ ) showed a significant negative relationship with access place, indicating that the place of access may negatively influence the use of e-learning services. In contrast, utilization of print resources ( $r = 0.029$ ) showed a very weak and statistically insignificant relationship with access place.

Overall, the analysis reveals that frequency of website visits and time spent on the website have strong positive relationships with the utilization of library website resources and services. The findings highlight that active and regular use of the library website increases effective utilization of online library information, services and technologies.

**Table 7:** Correlation between Utilization of Content available on library Website and Use of Library Website

Utilization of Content available on library Website	Use of Library Website		
	Frequency of Visit of Library Website	Time Spend per Visit	Access Place
General Information	.393**	.268**	.130*
Print Resources	.432**	.299**	0.029
E-Resources	.274**	.187**	.173*
Services	.518**	.413**	.327**
Emerging Technologies	.221**	.346**	.481**
E-Learning Platform	.641**	-0.022	-.176*
Web 2.0 Tools	.206**	.355**	.376**

Correlation is significant at the 0.05 level (2-tailed).

\* ( $p < 0.05$ )

Correlation is significant at the 0.01 level (2-tailed).

\*\* ( $p < 0.01$ )

• **Correlation between Satisfaction and Use of Library Website**

Table 8 presents the relationship between satisfaction levels on the library website and in aspect of three variables: frequency of visit of library website, time spent per visit and access place. The analysis shows that satisfaction level with library websites had a positive and statistically significant relationship with frequency of visits ( $r = 0.368, p < 0.01$ ) and time spent per visit ( $r = 0.334, p < 0.01$ ). This indicates that users who visited library websites more frequently and spent more time on them were generally more satisfied with the websites. However, access place showed a weak negative and statistically insignificant relationship with satisfaction level ( $r = -0.068$ ), suggesting that the place of access had little influence on users' satisfaction with library websites.

**Table 8:** Correlation between Satisfaction Level on Library Website and Use of Library Website

Content available on library Website	Use of Library Website		
	Frequency of Visit of library Website	Time Spend per Visit	Access Place
Satisfaction Level on Library Website	.368**	.334**	0.067584033

\*\* *Correlation is significant at the 0.01 level (2-tailed). ( $p < 0.01$ )*

**FINDINGS**

The present study examined users' awareness, utilization and satisfaction regarding web content available on library websites of selected women's universities in India. The findings indicate that library websites are becoming an important medium for accessing academic information, digital resources and online library services among university users. (Gohain & Mishra, 2023) point out that libraries are committed to providing effective e-learning resources through library websites, where users recognize e-learning as an accessible, informative and cost-effective mode of learning. (Singha & Verma, 2021) indicate that emerging technologies are increasingly influencing academic library services and creating new opportunities for library professionals to support teaching, learning and research through innovative digital services and user-friendly library websites.

(Sarode et al., 2025) study on users' competency in accessing electronic and digital information resources in non-agricultural university libraries of Maharashtra revealed varying levels of digital proficiency among users. The study also reflects changing information-seeking behaviour in the digital environment.

The demographic analysis revealed that the majority of respondents were female students because the study was conducted in women's universities. Postgraduate students constituted the largest group of respondents, followed by faculty members and research scholars. Study revealed the most respondents belonged to younger age group because postgraduates' students have participated in study in large number. Findings of the study on respondents' computer proficiency revealed that most library users possessed basic and intermediate computer literacy. A very small percentage of users were experts and had advanced computer skills. Study suggests that although users are familiar with digital knowledge, but there is a need for enhanced digital literacy along with information literacy training programmes in universities for effective use of advanced library website features.

Findings revealed that use of the library website was slightly higher among off-campus users compared to in-campus users. Accordingly, the study suggests the need for a remote access facility to online academic resources and library services from outside the campus. The study also found that most users visited the library website weekly and a similar percentage rarely. Monthly consumers used the library website for their unique purposes, but daily visitors were low. A small percentage had never visited the library website. The study recommends that libraries should organize awareness and orientation programs to improve users' website use. Compared to the average time spent on the library website, the findings indicated that most users spent much less time acquiring information. Regarding the relationship between computer proficiency and awareness of the library website, information literacy showed a significant positive correlation with awareness of the physical collection and library services. The study showed that users with better computer proficiency have comparatively higher awareness of e-resources, library services, Web OPAC, remote access tools and e-learning platforms. This study's findings highlight that technological competency plays an important role in improving awareness and the effective use of online library facilities.

The most frequent users actively visit the library website and utilize the different types of library resources available on the library website. The study analysis showed that respondents heavily used print resources, e-learning platforms and e-resources available on library websites. It is also found that the utilization of Web 2.0 tools and emerging technologies seemed comparatively lower. The study further indicated that the availability of accurate and relevant information on the library portal enhances the utilization of both physical and online resources. The findings also revealed a strong positive relationship between the frequency of visits to the library website and awareness of the information available on it, with aspects of Web OPAC, Web 2.0 tools and e-resources. The study also found a significant positive relationship between the frequency of visits to the library website and the e-learning platform, emerging technology, remote access tool, library events and physical collection. The study suggests that regular interactions with library websites improve users' awareness of the available resources and services of the library. The same observations have been reported in (Kim, 2017) studies that regular interactions make users familiar with library resources.

Regarding the relationship between use of the library website and utilization of library website information, the frequency of visits to the library website had a significant positive correlation with e-learning platforms, library services, print resources, general information, e-resources, e-learning platforms and web 2.0 tools. It implies that users who visited the library website more frequently had better utilized the information and facilities available on the library website. Findings also observed that time spent per visit also had a positive correlation with library services, web 2.0 tools, emerging technology, print resources, general information and e-resources. It has a negative correlation with the e-learning platform. Studies also suggest that users who spend more time on the library website can better utilize the additional information and resources available there. Users access the library website both on-campus and off-campus, indicating that the location of access is significantly positively correlated with Emerging Technology, Web 2.0 tools, services, e-resources and general information. It has a negative correlation with the e-learning platform.

Regarding the relationship between overall satisfaction with the use of library websites and the frequency of visits to the library website and time spent per visit, the study found that both variables are

significantly correlated with satisfaction with the library website. But access places has a negative correlation with satisfaction level on the library website. Studies suggest that respondents who actively used the library website were more satisfied with the library's online services and facilities. Off-campus and in-campus also affect the library resources awareness, utilization and satisfaction. Overall, the study shows that university library websites have become an important academic support system for users, especially women's universities. The study highlights the importance of library websites in the digital scenario by providing easy access to digital resources, remote accessibility and a user-friendly structure in academic libraries. The comparatively lower use of emerging technologies and Web 2.0 tools indicates the need for enhancement of awareness programmes, orientation sessions and training activities to improve users' engagement with advanced library technologies. The findings also emphasize that regular use of library websites enhances awareness, utilization and satisfaction among users.

## CONCLUSION

This study measures users' awareness, usage and satisfaction with the library websites of selected Indian women's universities. The survey also indicated that regular library website visitors were more aware and used the library's online resources and services. Further, the frequency of website visits and time spent on the library website increased users' awareness and proper utilization of resources. Active library website users were more aware of Web OPAC, remote access capabilities, e-resources and e-learning platforms. Active users were more satisfied with online library services and e-resources. The study suggests that libraries should offer frequent orientation, digital literacy and awareness programs. The survey also found that most users preferred off-campus, so there is a need for remote and digital learning support. The findings may help academic libraries, library professionals and university administrators plan and improve digital library services to meet users' information needs and expectations. However, the study has also certain limitations. As the research was conducted only in selected women's universities in India that have functional library websites. Future studies may include a larger number of universities and make comparisons among different types of higher educational institutions, organization, association etc. Further research may also include the impact of

artificial intelligence, mobile library applications and other emerging digital technologies on the effectiveness and usability of academic library websites.

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