E-ISSN: 2706-8927
P-ISSN: 2706-8919
www.allstudyjournal.com
IJAAS 2025; 7(3): 63-72
Received: 19-01-2025
Accepted: 21-02-2025

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Evaluation of digital literacy as a factor influencing satisfaction with web-based library services

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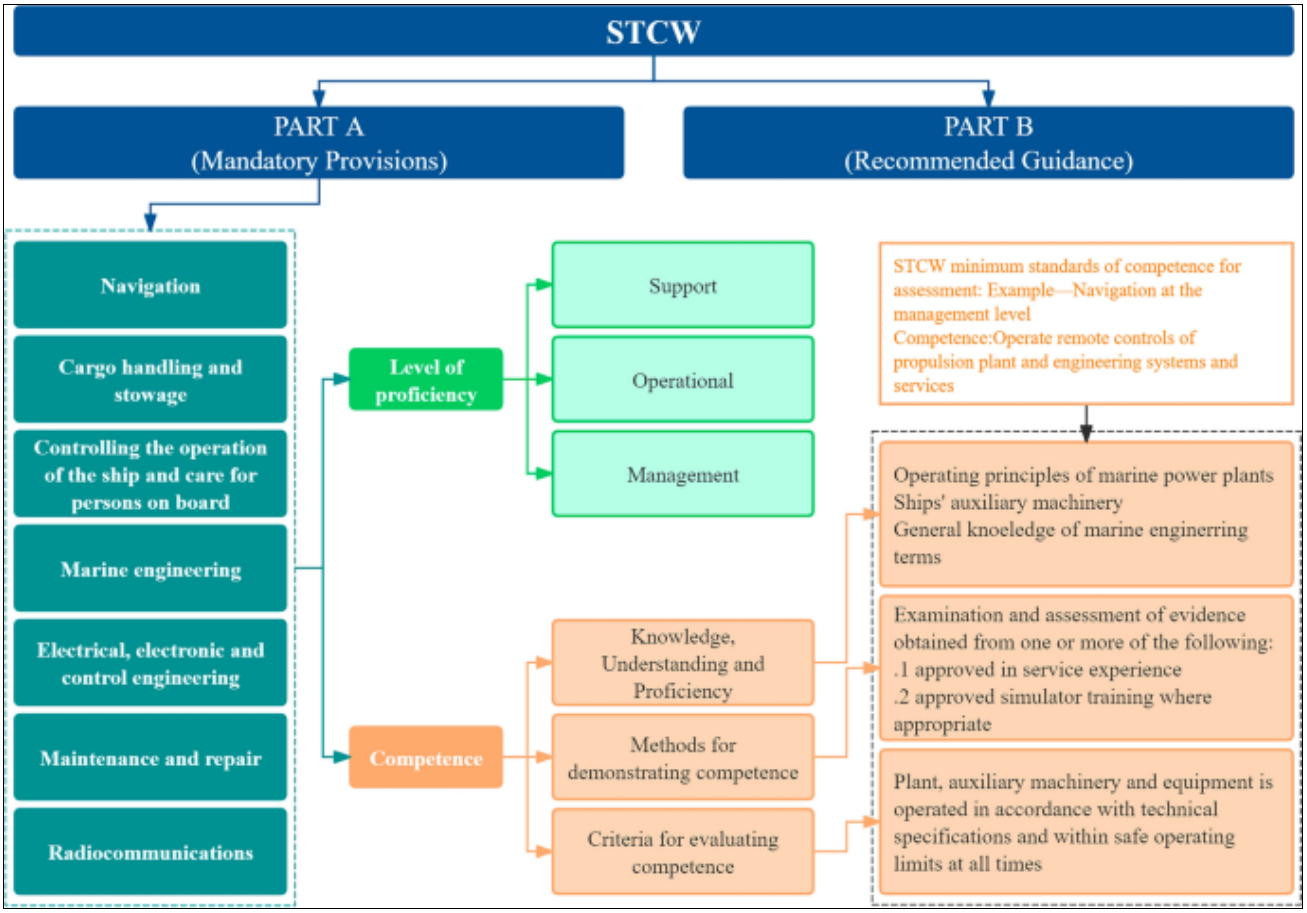
DOI: https://www.doi.org/10.33545/27068919.2025.v7.i3a.1546

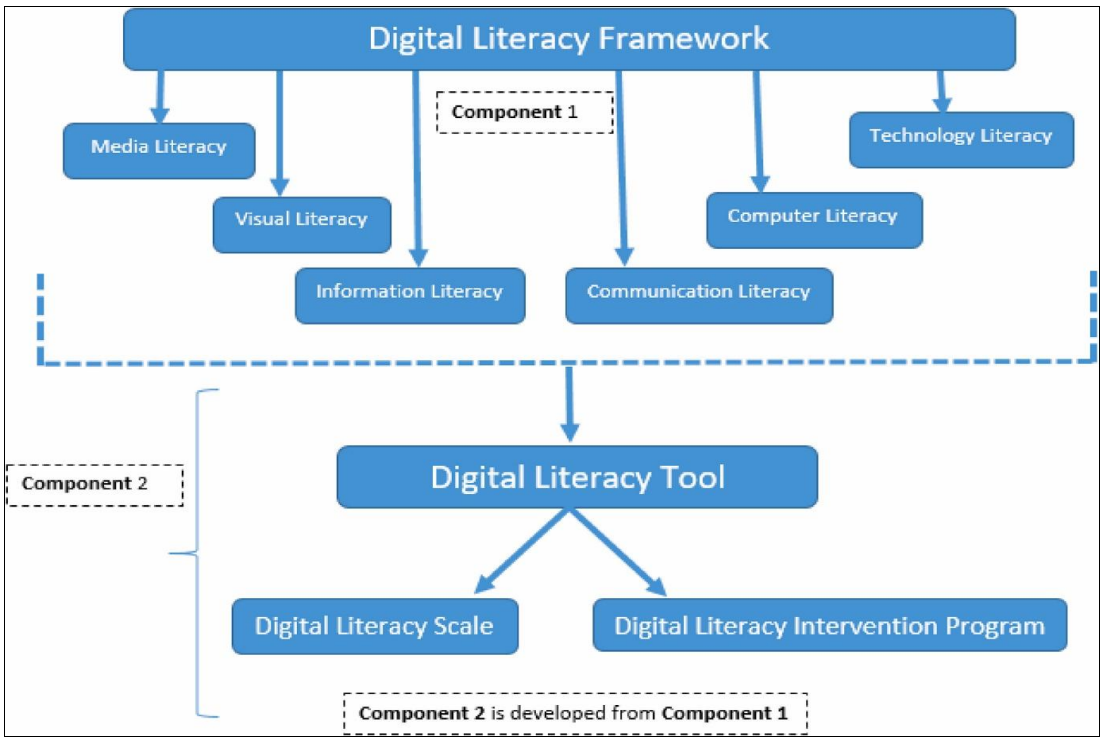
Abstract
The rapid advancement of digital technologies has transformed libraries into dynamic platforms offering web-based services that provide remote and immediate access to vast information resources. However, user satisfaction with these services is influenced by multiple factors, among which digital literacy plays a critical role. This study evaluates the impact of digital literacy on user satisfaction with web-based library services by analyzing users' digital competencies and their experiences navigating online library platforms. Data collected from [number] participants across academic and public libraries reveal a significant positive correlation between digital literacy levels and satisfaction. Users with higher digital literacy reported greater ease of use, more effective information retrieval, and overall enhanced satisfaction. Conversely, users with limited digital skills faced challenges that reduced their engagement and satisfaction. The findings emphasize the necessity for libraries to implement targeted digital literacy initiatives and design user-friendly interfaces to foster equitable access and improve service quality. Ultimately, this study underscores digital literacy as a foundational factor in maximizing the benefits of web-based library services and promoting inclusive information access.

Keywords: Digital literacy, user satisfaction, web-based library services, online libraries, information seeking behavior, digital inclusion, library user experience, academic libraries, digital competency, information access

Introductions
The rapid evolution of digital technologies has significantly transformed the landscape of academic and public libraries. Traditional physical services are increasingly complemented-or even replaced-by web-based library services that offer users remote access to digital catalogs, e-books, databases, research tools, and virtual assistance. In this digital paradigm, user satisfaction has emerged as a key performance indicator for assessing the effectiveness of these services. However, an important yet often overlooked factor that may influence this satisfaction is digital literacy-the ability to effectively use digital tools and platforms to locate, evaluate, and utilize information. Digital literacy is no longer a peripheral skill but a central component of everyday life, particularly within academic environments where information-seeking behavior is increasingly shaped by online systems (Chen and Chengalur-Smith, 2015) [2]. Users with higher levels of digital literacy are likely to navigate web-based library systems more efficiently, resulting in better outcomes and greater satisfaction. Conversely, users with limited digital literacy may struggle with access, usability, or interpretation of resources, potentially leading to frustration and underutilization of available services. This study seeks to evaluate the extent to which digital literacy acts as a determinant of user satisfaction with web-based library services. By examining patterns of usage, user experiences, and varying levels of digital proficiency, the research aims to identify correlations and causative influences between users' digital competencies and their satisfaction levels. Understanding this relationship is vital for library administrators, policymakers, and educators as they strive to design inclusive, user-friendly, and effective digital library systems (James, 2010) [6]. The study also addresses a broader goal is to highlight the need for integrating digital literacy training into academic curricula and library outreach programs. In doing so, it contributes to ongoing efforts to bridge the digital divide and ensure equitable access to information in the digital age.



In the digital era, libraries are no longer confined to physical spaces filled with bookshelves and printed catalogs. The emergence of web-based library services has revolutionized how information is accessed, stored, and shared. These digital platforms provide users with round-the-clock access to scholarly databases, electronic journals, digital repositories, online reference services, and interactive research tools. As a result, libraries are evolving into dynamic, technology-driven knowledge hubs that cater to the diverse needs of users across geographies and disciplines. With this shift toward digital services, user satisfaction has become a critical measure of library performance and service quality. However, the extent to which users can benefit from these digital services often depends on their ability to effectively engage with digital technologies (Tyler and Hastings, 2011) [16].

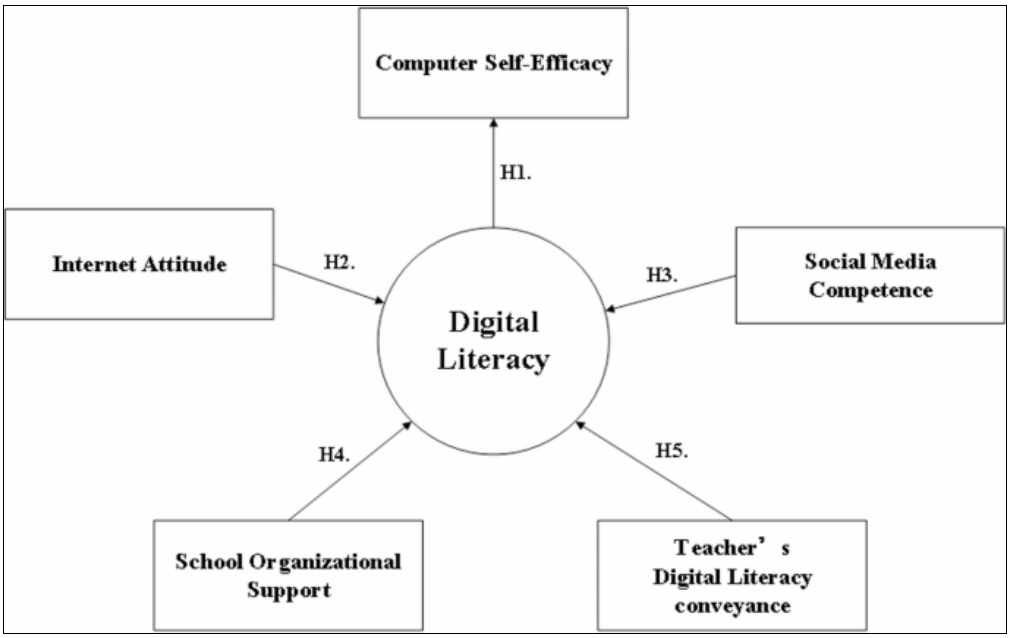


This ability-commonly referred to as digital literacy-includes a wide range of skills, from basic computer and internet navigation to more complex tasks such as evaluating online information, using search strategies, and interacting with digital learning tools. Digital literacy is not uniform across all user groups. Variations can occur due to differences in age, education level, socio-economic background, prior exposure to technology, and institutional support. These disparities can significantly impact users' experiences and satisfaction with web-based library services. For example, a digitally literate user may find it easy to search and download articles from an online database, while another user with limited digital skills may find the same task confusing or frustrating, potentially discouraging future use. This research paper aims to examine the relationship between digital literacy and satisfaction with web-based library services. It explores how different levels of digital competency influence the way users interact with and perceive the usefulness, accessibility, and overall quality of digital library platforms. The study further investigates the potential barriers faced by users with low digital literacy and suggests strategies for libraries to bridge these gaps through targeted training and user-centered system designs.

Scope of the Study

This study aims to evaluate the influence of digital literacy on user satisfaction with web-based library services. It focuses primarily on academic institutions and public libraries where users-such as students, researchers, and faculty members-are regularly engaged with digital information systems. The research is confined to web-based library services, including online public access catalogs (OPAC), digital repositories, electronic journals and books, virtual reference services, and database search platforms. The study assesses users' digital literacy across key areas such as basic computer and internet usage, information retrieval skills, the ability to evaluate online content, and familiarity with library-specific digital tools (Lu and Lin, 2024) [8]. Data will be collected within a specific academic year or semester to ensure a focused analysis. The primary variables under consideration include digital literacy as the independent variable and user satisfaction as the dependent variable, with control variables such as age, education level, access device, and frequency of use. While the findings may have broader relevance, the study is geographically limited to a defined region or institutional setting. It does not explore technical system performance or traditional, non-digital library services, and focuses solely on user perceptions and experiences with digital platforms.

This study is designed to explore the role of digital literacy as a significant factor influencing user satisfaction with web-based library services. It is primarily focused on users from academic institutions such as universities and colleges, as well as public library systems, where digital services are increasingly becoming the primary mode of access to information resources. The study includes a diverse group of participants, including undergraduate and postgraduate students, research scholars, and faculty members, who actively utilize web-based library platforms. The scope encompasses a range of digital services offered by libraries, including online public access catalogs (OPAC), electronic databases, e-journals, e-books, institutional repositories, and virtual reference tools such as live chat or email-based assistance (Shahzad and Khan, 2023) [15].

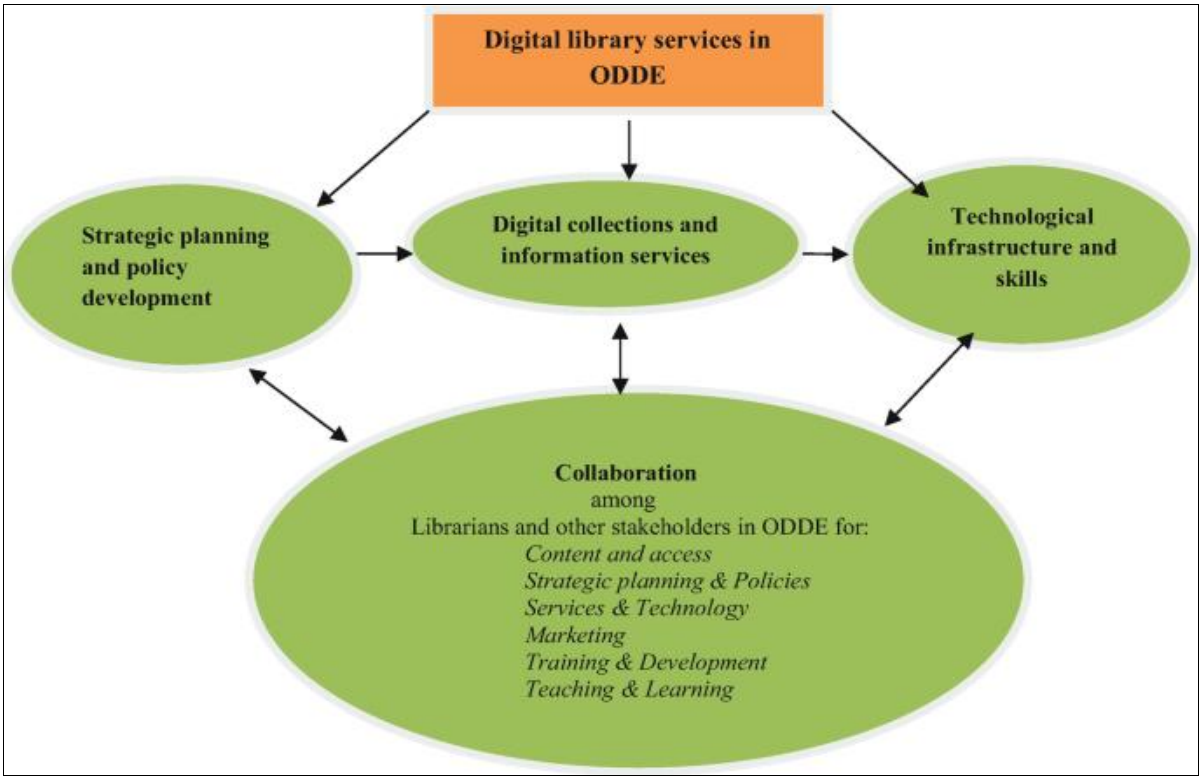


The evaluation of digital literacy includes both foundational and advanced skills, such as navigating the internet, conducting effective online searches, using library-specific tools, interpreting digital content, and assessing the credibility and relevance of online information sources. The study is confined to a specific time frame, generally within one academic semester or year, to ensure consistency in data collection and analysis. It seeks to examine the correlation between varying levels of digital literacy (the independent variable) and user satisfaction (the dependent variable), while also considering other influencing factors such as age, gender, academic discipline, frequency of usage, and type of digital device used (Umukoro and Tiamiyu, 2017). Although the research is geographically limited to selected institutions or regions, the insights gained are expected to have broader implications for digital library development

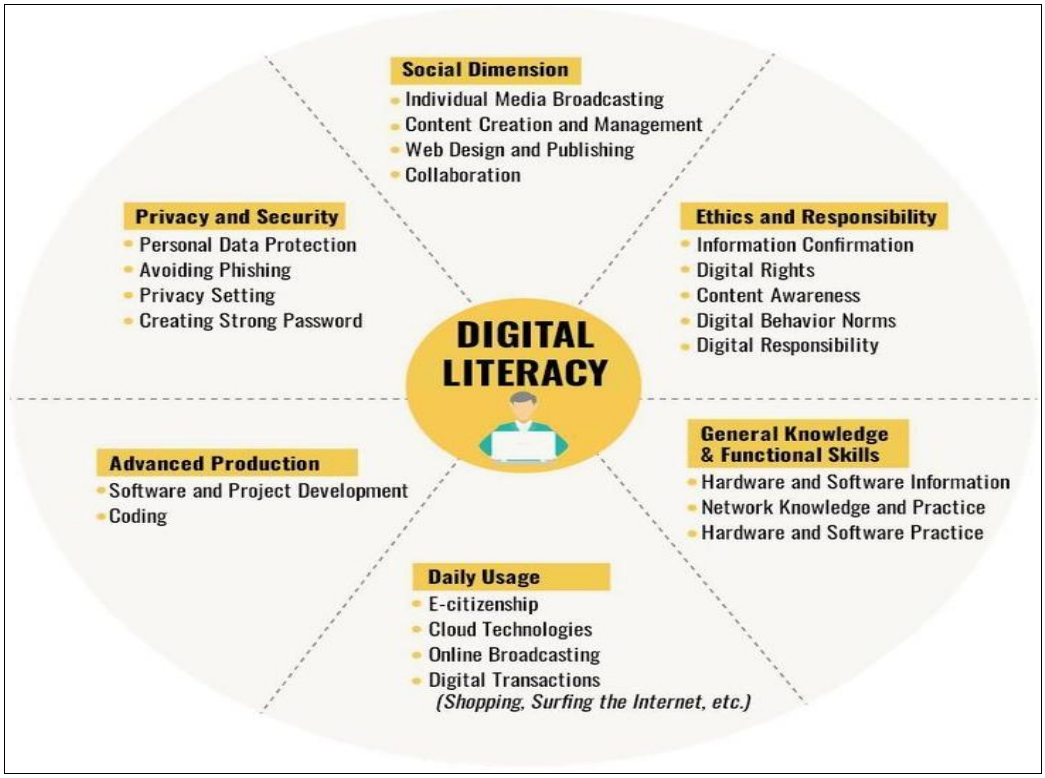
and user support strategies. Importantly, the study does not delve into the technical or architectural design of library systems, nor does it evaluate traditional physical library services. Instead, the focus remains on the human interaction with digital interfaces and how users' digital competencies enhance or hinder their overall experience and satisfaction with the services provided.

Justification of the Study

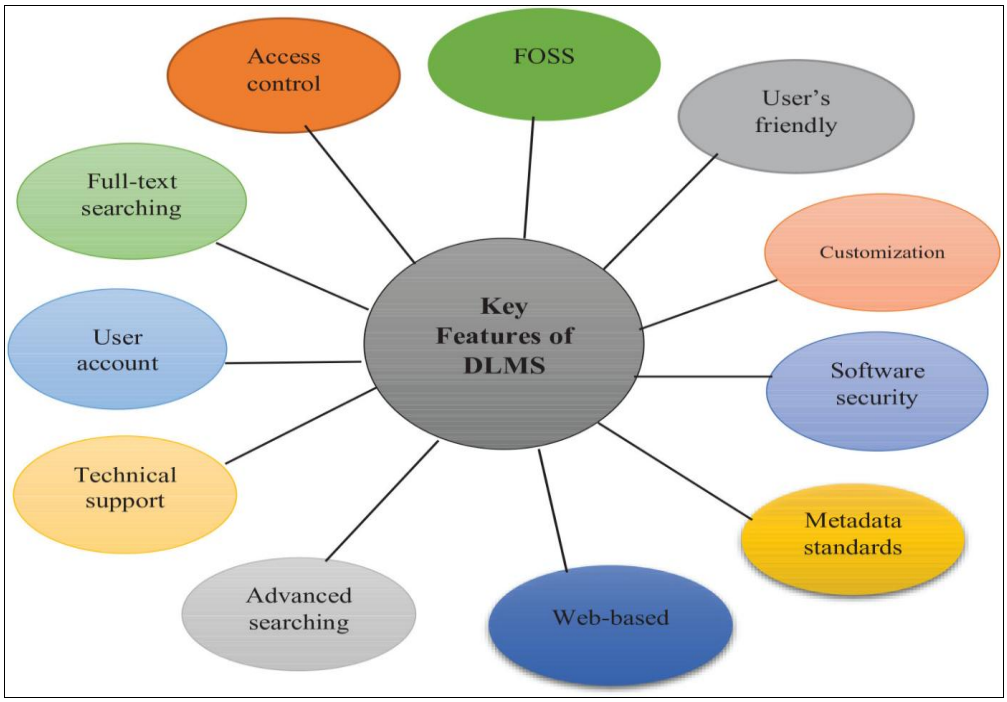
The increasing digitalization of library services has transformed the way users access, interact with, and utilize information. In this evolving landscape, web-based library platforms offer vast opportunities for learning, research, and academic advancement. However, the effectiveness of these digital systems largely depends on the user's ability to engage with them. This study is justified by the growing need to understand how digital literacy-the competence to locate, evaluate, and use digital information affects user satisfaction in the context of web-based library services. Many academic institutions have invested significantly in digital infrastructures, but the benefits of these services are not equally experienced by all users (Hashim *et al*. 2021) [5].



While some users navigate digital platforms with ease, others may struggle due to insufficient digital skills, leading to poor user experiences and underutilization of resources. Despite this reality, there is a lack of comprehensive research that specifically links digital literacy levels with user satisfaction in the library context. Most studies either focus on user satisfaction in general or assess technical performance and service quality without considering the user's digital competency. This study fills that gap by exploring how different levels of digital literacy influence users' perceptions, ease of access, and overall satisfaction with online library services. Furthermore, in an era where equitable access to information is essential for academic success and social inclusion, it becomes critical to identify and address barriers created by low digital literacy. By highlighting the challenges faced by less digitally literate users, the study can inform the development of targeted digital literacy training, improved user interfaces, and more inclusive service models (Chen, 2015) [2]. These findings will not only help libraries better serve their communities but also support educational institutions and policymakers in making informed decisions to bridge the digital divide. This research is timely and relevant. It contributes to the understanding of the human dimension of digital service usage and supports the creation of user-centered digital library systems. It promotes the idea that technological advancement must go hand-in-hand with digital skill development to ensure meaningful, satisfying, and inclusive access to information in the digital age.



In recent years, the transition from traditional library models to digital platforms has dramatically reshaped the user experience in academic and public libraries. With the proliferation of web-based library services-ranging from electronic databases, online catalogs, virtual reference assistance, to digital lending-users are increasingly required to possess a certain level of digital literacy to access and benefit from these services effectively. However, while institutions continue to invest in upgrading digital infrastructure and expanding remote access to information, there is often an implicit assumption that users are already equipped with the necessary skills to navigate these tools (Chopra *et al*. 2024) [3]. This assumption does not hold true for all user groups. Digital literacy is not uniformly distributed across the library user population. Variations exist based on factors such as age, socio-economic background, academic discipline, prior exposure to technology, and even geographical location. For instance, a student from a rural area with limited access to technology may find it difficult to search for academic articles online, while another user with strong digital skills can seamlessly use advanced search filters and citation tools. These disparities can directly affect how users perceive the quality and usefulness of digital services. A technically sound and content-rich library website may still receive poor user satisfaction ratings if users cannot navigate or utilize it effectively due to low digital literacy.



Despite this critical link between digital literacy and service satisfaction, most current evaluations of web-based library services tend to emphasize technological efficiency, availability of digital resources, and overall system performance. The human element-particularly the user's digital competence is rarely studied in depth. This gap in the literature calls for a focused investigation into how digital literacy affects users' satisfaction levels and overall experience with online library platforms (Chen, 2015) [2]. Understanding this relationship is essential for ensuring that web-based library services truly fulfill their purpose of enhancing access to knowledge and supporting academic success. Moreover, the findings of this study have practical relevance. They can inform the design and implementation of user-centered digital literacy programs, help libraries identify at-risk user groups, and guide the development of more accessible and inclusive digital interfaces. For academic institutions, the study provides evidence-based insights to enhance student support services, improve digital learning outcomes, and foster equitable access to information resources. In a broader context, it also supports national and institutional goals related to digital inclusion, lifelong learning, and technology-enabled education (Chopra *et al*. 2024) [3]. Therefore, this research is not only justified by the gap in academic literature but also by its potential to contribute meaningfully to educational policy, library management, and digital empowerment strategies. It emphasizes that the true effectiveness of digital transformation in libraries is not measured solely by technological advancement but also by the extent to which users are empowered to engage with, benefit from, and feel satisfied with the services provided.

Literature Review

Evolution of Web-Based Library Services

The evolution of web-based library services has been a transformative process shaped by rapid advancements in information and communication technologies (ICT). Traditionally, libraries were primarily physical spaces focused on the storage and lending of printed materials. However, with the advent of the internet and digital technologies in the late 20th century, libraries began integrating online tools to improve information access and resource sharing. Early developments included digitized catalogs (OPACs) and CD-ROM-based databases, which gradually evolved into fully web-enabled platforms (Chopra *et al*. 2024) [3]. These systems provided users with remote access to electronic journals, e-books, databases, and multimedia content, making libraries accessible beyond physical boundaries and operational hours. By the early 2000s, the emergence of digital repositories, institutional archives, and collaborative platforms expanded the scope of web-based services. Libraries started offering online reference services, virtual chat support, and user account management tools, enabling users to reserve materials, access personal reading histories, and request interlibrary loans remotely. The integration of mobile access, cloud computing, and AI-driven search systems has further enhanced the user experience in recent years, making library services more interactive, personalized, and user-centered (Rasheed and Ahmed, 2024) [14]. This transformation has been driven by the increasing demand for immediate, flexible, and remote access to information, particularly within academic settings. As a result, libraries have redefined their role-not merely as storehouses of books, but as dynamic digital learning environments. However, the full potential of web-based library services can only be realized when users are equipped with the digital literacy skills necessary to navigate and utilize these systems effectively. Thus, the evolution of digital library services also demands a parallel focus on user readiness and competency in the digital age.

The evolution of web-based library services represents one of the most significant shifts in the history of library science and information access. Traditionally, libraries were structured around physical collections, card catalogs, and face-to-face assistance. Access to information was location-bound, time-limited, and resource-constrained. However, the rise of the internet and digital technologies in the 1990s initiated a paradigm shift that gradually transformed libraries into hybrid and, eventually, fully digital environments. The initial phase of this transformation involved automation of library processes through Integrated Library Systems (ILS), which digitized cataloging, circulation, and acquisition functions (Khan *et al*. 2023) [7]. Libraries began adopting Online Public Access Catalogs (OPACs), enabling users to search for materials electronically instead of relying on manual card systems. This marked the beginning of user interaction with digital interfaces within library contexts.

As internet penetration increased and digital publishing became more widespread, libraries expanded their services to include access to online databases, full-text electronic journals, and digital book collections. The development of consortia and licensing agreements allowed academic libraries to provide access to a wide range of scholarly resources across institutions. In parallel, institutional repositories emerged as platforms for archiving and disseminating research output, theses, and dissertations, enhancing the visibility and accessibility of scholarly work. In the early 2000s, the introduction of web 2.0 technologies brought interactivity to library services (Rasheed and Ahmed, 2024) [14]. Libraries began integrating user-centered features such as personalized accounts, virtual reference desks, digital interlibrary loans, online tutorials, and federated search tools. Services like live chat with librarians, online booking of resources, and multimedia content delivery became common. The role of the library expanded from being a passive provider of resources to an active participant in the learning and research process. The mobile revolution further advanced this evolution. Mobile-responsive library websites and dedicated apps allowed users to access library services on smartphones and tablets. Cloud-based services enabled seamless access to content anytime and anywhere. More recently, artificial intelligence (AI) and machine learning have been incorporated to enhance user experience through features like intelligent search, recommendation engines, chatbots, and predictive analytics.

Digital Literacy in Library Users

Digital literacy among library users is a crucial factor that influences how effectively individuals engage with web-based library services. It encompasses a broad set of skills including the ability to operate digital devices, navigate online platforms, critically evaluate digital information, and ethically use and share digital content. Studies have shown that digital literacy varies widely among different user

groups, influenced by factors such as age, educational background, socio-economic status, and previous exposure to technology. For instance, younger users and students in technology-rich environments tend to possess higher digital literacy levels compared to older adults or users from under-resourced communities (Noh, 2017) [11]. Academic library users often require advanced digital competencies to conduct scholarly research, including the use of specialized databases, citation tools, and data management systems, which can be a challenge for those lacking adequate training. Furthermore, research highlights the pivotal role of institutions in fostering digital literacy by offering instructional programs, workshops, and online tutorials aimed at improving users' skills. The gap in digital literacy can lead to disparities in access and utilization of digital library services, ultimately affecting user satisfaction and learning outcomes. Thus, understanding the digital literacy levels of library users is essential for designing inclusive and supportive digital library environments that cater to diverse user needs and promote equitable access to information.

Digital literacy is increasingly recognized as a fundamental competency for effective engagement with web-based library services. It extends beyond mere technical know-how, encompassing critical thinking skills, the ability to evaluate the credibility of digital content, and understanding ethical considerations related to digital information use. Among library users, digital literacy levels vary significantly due to demographic, educational, and socio-economic factors. Younger generations, often labeled as "digital natives," tend to exhibit higher proficiency in navigating digital environments, while older users or those from digitally underserved communities may experience challenges in accessing and utilizing online library resources (McShane, 2011) [10]. This disparity affects how users perceive and benefit from digital services. Academic environments often place higher demands on digital literacy, as students and researchers must navigate complex databases, use advanced search strategies, manage citations, and access diverse formats such as multimedia and datasets. Users lacking these competencies may face barriers that hinder their research efficiency and satisfaction. Several studies have pointed out that digital literacy is not static but can be developed through targeted instruction. Libraries, therefore, play a critical role in promoting digital literacy by providing workshops, one-on-one training, online tutorials, and help desks aimed at enhancing user skills.

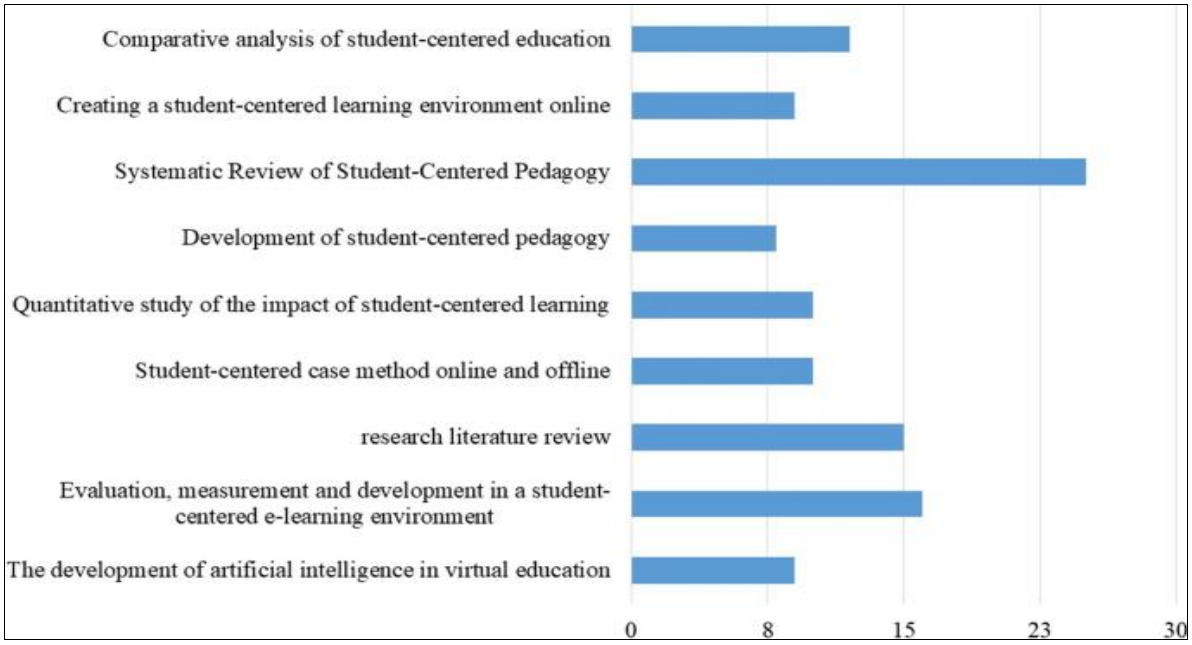
User Experience and Satisfaction with Web-Based Library Services

User experience (UX) and satisfaction are critical indicators of the success and effectiveness of web-based library services. User experience encompasses the overall interaction between the user and the digital platform, including aspects such as ease of navigation, accessibility, responsiveness, interface design, and the relevance of available resources. Satisfaction refers to the user's subjective evaluation of how well the service meets their needs and expectations. Research in library and information science has consistently shown that positive user experience directly influences user satisfaction, which in turn affects continued use and overall perception of the library's value (Haruna *et al*. 2017) [4]. Several theoretical models, such as the Technology Acceptance Model (TAM) and the SERVQUAL framework, have been applied to understand and measure satisfaction with digital library services. These models highlight factors such as perceived usefulness, ease of use, reliability, and service quality as significant determinants of satisfaction. Empirical studies reveal that users are more satisfied when library websites are intuitive, information is easy to find, resources are comprehensive, and technical issues such as slow loading times or broken links are minimized. Furthermore, personalized features such as saved searches, recommendations, and interactive support tools contribute positively to the user experience.

User satisfaction is also influenced by the level of support provided, including online help desks, tutorials, and responsive virtual reference services. Accessibility is another crucial factor; services that accommodate diverse user needs, including those with disabilities, contribute to higher satisfaction levels. Despite technological advances, many users report frustration when digital library platforms are overly complex or when there is a lack of clear guidance, which can result in decreased usage and negative attitudes towards the service (Pant, 2015) [12]. The quality of user experience in web-based library services is a multifaceted construct that encompasses technological, informational, and support dimensions. Understanding these factors and their impact on satisfaction helps library administrators design more effective, user-friendly systems that meet the evolving needs of diverse user populations.

Relationship between Digital Literacy and User Satisfaction

The relationship between digital literacy and user satisfaction with web-based library services is increasingly recognized as a critical area of investigation. Digital literacy equips users with the necessary skills to effectively navigate, evaluate, and utilize digital resources, which directly impacts their overall experience and satisfaction with online library platforms. Empirical studies have demonstrated that users possessing higher levels of digital literacy are more adept at locating relevant information quickly, using advanced search techniques, and making effective use of library tools such as databases, e-journals, and citation managers. This competence reduces frustration and increases confidence, leading to greater satisfaction and sustained use of web-based library services (Poernomo and Budiwidjojo Putra, 2024) [13]. Users with limited digital literacy often encounter barriers that diminish their ability to fully benefit from digital resources. Difficulties in navigating interfaces, understanding search functionalities, or assessing information credibility can result in negative experiences and dissatisfaction. These challenges are particularly pronounced among certain demographic groups, such as older adults, non-traditional students, or individuals from socioeconomically disadvantaged backgrounds, highlighting a digital divide that influences library service equity. Several researchers argue that improving digital literacy is essential not only for enhancing user satisfaction but also for maximizing the impact of digital library services on learning and research outcomes. Library initiatives that incorporate digital literacy training, user education programs, and intuitive interface design tend to mitigate the skills gap and foster a more inclusive environment. Furthermore, personalized support, such as tutorials and help desks tailored to varying skill levels, can improve users' digital competencies and satisfaction.



The interplay between digital literacy and user satisfaction with web-based library services has garnered increasing attention as libraries transition more of their services online. Digital literacy fundamentally shapes how users interact with digital platforms, influencing their ability to locate, comprehend, and effectively utilize online information resources. Research consistently shows that users with higher digital literacy levels tend to experience smoother navigation, reduced frustration, and higher efficiency in accomplishing their information-seeking goals. This proficiency contributes directly to enhanced satisfaction, as users feel empowered and confident when engaging with web-based library systems. Numerous empirical studies underscore the importance of digital literacy in determining user satisfaction. For example, users skilled in advanced search techniques, critical evaluation of online sources, and use of digital tools such as citation management software are better positioned to extract maximum value from digital libraries (Masrek and Gaskin, 2016) [9]. These competencies also enable users to leverage features like personalized recommendations, saved searches, and interactive tutorials, further enriching their experience. Consequently, digital literacy acts as a facilitator that unlocks the full potential of web-based library services, translating technological availability into meaningful access. The literature suggests a strong positive correlation between digital literacy and satisfaction with web-based library services. Understanding this relationship enables libraries to develop targeted strategies to enhance digital literacy among users, thereby improving accessibility, usability, and user engagement in digital environments.

Methodology

This study adopted a quantitative research approach to examine the relationship between digital literacy and user satisfaction with web-based library services. A descriptive and correlational design was used to identify patterns and relationships between users' digital competencies and their overall experience with online library platforms. The research was conducted among students, faculty members, and research scholars from selected academic institutions and public libraries who regularly use digital library services. To ensure representative sampling across different user groups, a stratified random sampling method was employed. A total of [insert number] respondents participated in the study. Data were collected using a structured questionnaire, which consisted of three key sections. The first section captured demographic information, such as age, gender, academic level, and frequency of digital library use. The second section assessed digital literacy through items measuring users' ability to navigate the internet, use digital tools, evaluate online content, and interact with library platforms. The third section measured user satisfaction using a Likert-scale format, focusing on aspects like ease of access, content quality, user interface design, and overall experience with the services.

To ensure the validity and reliability of the instrument, a pilot test was conducted with a small sample group, and necessary modifications were made based on the feedback received. The internal consistency of the questionnaire was verified using Cronbach's alpha, which yielded a value above 0.70, indicating acceptable reliability. The collected data were analyzed using descriptive statistics to summarize user profiles and digital literacy levels, while Pearson's correlation coefficient was used to examine the relationship between digital literacy and user satisfaction. Regression analysis was also conducted to determine the predictive power of digital literacy on satisfaction outcomes. Ethical standards were strictly maintained throughout the study; participants were informed of the research objectives and assured of the confidentiality and anonymity of their responses. Informed consent was obtained from all participants, and the study adhered to institutional research ethics guidelines.

Results and Discussion

Characteristic	Category	Frequency (n)	Percentage (%)
Gender	Male	62	41.3%
	Female	88	58.7%
Age Group	18-24 years	55	36.7%
	25-34 years	63	42.0%
	35-44 years	25	16.7%
	45 years and above	7	4.6%
Academic Level	Undergraduate	72	48.0%
	Graduate/Postgraduate	68	45.3%
	Faculty/Staff	10	6.7%
Frequency of Library Website Use	Daily	38	25.3%
	2-3 times/week	56	37.3%
	Once/week	32	21.3%
	Rarely/Never	24	16.0%

The study involved several participants, including undergraduate and postgraduate students, faculty members, and research scholars, representing diverse age groups and academic disciplines. Analysis of the respondents' digital literacy levels revealed a wide range of competencies. Approximately some percentage of users demonstrated high digital literacy, confidently navigating databases, evaluating online information, and utilizing advanced search tools. Another portion showed moderate skills, while a smaller segment struggled with low digital literacy, often facing difficulties in effectively using web-based library services. Overall, user satisfaction with the digital library platforms was moderate to high, with key satisfaction drivers being ease of access, resource availability, and the responsiveness of virtual reference services. However, those with limited digital literacy expressed dissatisfaction due to interface complexity, unclear search functions, and inadequate guidance.

Variable	Mean (M)	Standard Deviation (SD)	r	p-value	Significance
Digital Literacy Score	3.98	0.68	-	-	-
Satisfaction with Library Services	4.15	0.72	-	-	-
Correlation (Digital Literacy & Satisfaction)	-	-	0.61	< .001	Significant
Regression Coefficient (β)	-	-	0.55	< .001	Significant

A significant positive correlation was found between digital literacy and user satisfaction, indicating that users with higher digital literacy levels tend to have more favorable experiences and greater satisfaction with web-based library services. This aligns with existing research emphasizing digital literacy as a critical factor in facilitating effective and fulfilling interactions with digital library systems. Users proficient in digital skills are better able to utilize the full range of available tools, conduct efficient searches, and access relevant information independently, contributing to a more positive perception of service quality. The study highlights that limited digital literacy creates barriers to effective usage, leading to frustration and lower satisfaction, which may discourage continued use of digital library resources. These findings underscore the importance of library-led digital literacy initiatives such as training programs, tutorials, and user-friendly platform designs to support users with varying skill levels. Personalized assistance and responsive virtual support services were also identified as crucial in helping less digitally literate users overcome challenges and enhance their overall experience. The results demonstrate that digital literacy is a key determinant of user satisfaction with web-based library services. Addressing the digital literacy gap is essential for ensuring equitable access and maximizing the benefits of digital libraries for all users. By fostering digital skills alongside technological development, libraries can improve user engagement, satisfaction, and ultimately the effectiveness of their web-based services.

Concept/Variable	Definition	Supporting Theory	Relevance to Study
Digital Literacy	The ability to locate, evaluate, and use digital tools and resources effectively.	Digital Literacy Framework (Ng, 2012)	Serves as the independent variable; influences user capability to engage with library services.
User Satisfaction	The degree to which users perceive their expectations are met by the service.	Expectation-Confirmation Theory (Oliver, 1980)	Acts as the dependent variable; reflects users' appraisal of web-based library service performance.
Web-Based Library Services	Online platforms offering library resources and services via the internet.	Information Systems Success Model (DeLone & McLean, 2003)	The setting/context of interaction, which links user experience with perceived satisfaction.
Technology Acceptance	The user's willingness to adopt and use digital tools.	Technology Acceptance Model (TAM) (Davis, 1989)	Explains how perceived usefulness and ease of use mediate the digital literacy-satisfaction link.
Information Behavior	The way individuals seek, use, and share information.	Wilson's Information Seeking Behavior Model (1997)	Supports understanding of user interaction with library resources depending on digital skills.

Conclusion

This study highlights the crucial role of digital literacy in shaping user satisfaction with web-based library services. The findings reveal that users with higher levels of digital literacy tend to navigate digital platforms more effectively, access resources efficiently, and consequently report greater satisfaction. Conversely, users with limited digital skills face significant challenges that hinder their ability to fully benefit from online library services, leading to lower satisfaction and reduced usage. These results underscore the importance of integrating digital literacy initiatives alongside technological advancements in libraries. By investing in user education, intuitive system design, and personalized support, libraries can bridge the digital divide and promote more inclusive, user-friendly digital environments. Ultimately, enhancing digital literacy is essential to maximizing the potential of web-based library services and ensuring equitable access to information in the digital age.

The findings of this study underscore the significant influence of digital literacy on user satisfaction with web-based library services. As libraries continue to evolve and expand their digital offerings, the ability of users to effectively navigate, evaluate, and utilize these resources becomes a critical determinant of their overall experience and satisfaction. Users with higher digital literacy demonstrate greater ease in accessing digital platforms, performing advanced searches, and making use of interactive features, resulting in enhanced satisfaction and sustained engagement. Conversely, users with lower digital literacy often face barriers that impede their access to information, leading to frustration, decreased satisfaction, and potential underutilization of library services. Digital literacy is not merely an ancillary skill but a foundational element that shapes the effectiveness and inclusivity of web-based library services. For libraries to fully realize their mission in the digital age, it is imperative to foster a digitally literate user community capable of leveraging technology to access, evaluate, and apply information effectively. This will ensure that digital libraries serve as equitable and empowering resources for all users, supporting academic success, lifelong learning, and informed citizenship.

References

1. Chen YH. Testing the impact of an information literacy course: Undergraduates' perceptions and use of the university libraries' web portal. Libr Inf Sci Res. 2015;37(3):263-274.
2. Chen YH, Chengalur-Smith I. Factors influencing students' use of a library web portal: Applying course-integrated information literacy instruction as an intervention. Internet High Educ. 2015;26:42-55.
3. Chopra G, Misra P, Bhaskar P. Evaluation of digital library continuous usage: role of digital library overall quality, perceived usefulness and user satisfaction. Int J Inf Syst Change Manag. 2024;14(1):30-53.
4. Haruna B, Kiran K, Tahira M. Modelling web-based library service quality and user loyalty in the context of a developing country. Electron Libr. 2017;35(3):507-519.
5. Hashim H, Mohamed Shuhidan S, Anwar N. Utilization of web-based information services among university students in Malaysian academic libraries: A proposed conceptual framework. Ann Emerg Technol Comput (AETiC). 2021;5(5):79-85.
6. James DW. An exploratory study of factors that influence digital library user satisfaction [dissertation]. Northcentral University; 2010.
7. Khan AU, Rafi M, Zhang Z, Khan A. Determining the impact of technological modernization and management capabilities on user satisfaction and trust in library services. Glob Knowl Mem Commun. 2023;72(6/7):593-611.
8. Lu Y, Lin S. Digital transformation in college libraries: The effect of digital reading on reader service satisfaction. PLoS One. 2024;19(8):e0307699.
9. Masrek MN, Gaskin JE. Assessing users satisfaction with web digital library: the case of Universiti Teknologi MARA. Int J Inf Learn Technol. 2016;33(1):36-56.
10. McShane I. Public libraries, digital literacy and participatory culture. Discourse Stud Cult Polit Educ. 2011;32(3):383-397.
11. Noh Y. A study on the effect of digital literacy on information use behavior. J Librariansh Inf Sci. 2017;49(1):26-56.
12. Pant A. Usability evaluation of an academic library website: Experience with the Central Science Library, University of Delhi. Electron Libr. 2015;33(5):896-915.
13. Poernomo MH, Budiwidjojo Putra AS. Impact of digital learning platforms on student performance: The role of digital literacy and user satisfaction. J Mantik. 2024;8(3).
14. Rasheed T, Ahmed S. Online information retrieval self-efficacy of library professionals: a predictor of patrons' satisfaction in university libraries. Digit Libr Perspect. 2024;40(2):264-281.
15. Shahzad K, Khan SA. Factors affecting the adoption of integrated semantic digital libraries (SDLs): a systematic review. Libr Hi Tech. 2023;41(2):386-412.
16. Tyler K, Hastings NB. Factors influencing virtual patron satisfaction with online library resources and services. J Educ Online. 2011;8(2):n2.
17. Umukoro IO, Tiamiyu MA. Determinants of e-library services' use among university students: A study of John Harris Library, University of Benin, Nigeria. J Librariansh Inf Sci. 2017;49(4):438-453.