



Transforming Library Service and Function in the NIELIT Kohima Library for Assuring of Quality in this Digital Era: An Observation

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ABSTRACT

The research looks at how the NIELIT Kohima Library has changed its services and operations to provide quality control in the digital age. A structured online questionnaire with Likert- scale questions is use to gather data from 250 respondents as part of an exploratory and descriptive study strategy. Diverse stakeholders are represented using stratified random sampling with purposeful selection, and SPSS and AMOS are used for data analysis and structural equation modeling (SEM). The results show that three important factors digital literacy, service quality dimensions, and digital access and resource availability have a considerable impact on user happiness, with digital access having the most effect. While digital literacy not only had a direct impact on satisfaction but also reinforced the link between service quality and user experience, responsiveness and assurance within service quality characteristics were found to increase satisfaction. According to the study's findings, libraries should go beyond their traditional functions to become centers of digital empowerment by using cutting- edge technology, improving infrastructure, implementing user-centered strategies, and offering training in digital literacy. The findings show that investments in digital infrastructure, service quality, and capacity



development directly contribute to user happiness and long-term quality assurance, with practical implications for administrators and politicians.

1 Introduction

Digital transformation is transforming how information is accessed, stored, and shared, making it a distinguishing feature of the modern library environment. Libraries must adapt significantly in this digital age to satisfy changing user requirements and stay relevant in a society that is becoming more and more reliant on technology.

The use of digital technology to improve conventional library operations and services is known as "digital transformation" in libraries. This change covers a wide range, from the use of cutting-edge technology in library operations to the digitalization of archive artifacts. Libraries are evolving from being static collections of books to being vibrant, technologically advanced centers of knowledge and information (SONI, 2023). Digital technologies are being used by libraries to broaden their audience and make knowledge more accessible to all. Libraries attempting to close the gap between the conventional and new information environments must now embrace digital platforms, online databases, and virtual services. In a culture where information is increasingly consumed in digital forms, libraries must adapt to a more digitally centered model for their survival and continued relevance. This change is not only a convenience issue.

NIELIT Kohima

The National Institute of Electronics & Information Technology, or NIELIT, Kohima, is a technical institute at the national level that is controlled and operated by NIELIT. This institution was established in 2004 and functions as an independent scientific body connected to the Department of Electronics & Information Technology, Ministry of Communications & IT, Government of India. Students at NIELIT, Kohima have the option of both formal and non-formal sector courses to increase their possibilities in the IECT area (Lalit Bhandari, 2025).

In the past, a large portion of the learning process took place in college libraries, which were crowded with instructors and students. But with the invention of the Internet, college libraries are almost empty, and students spend the majority of their time on the Internet. Their attention span is also being affected, in



addition to the fact that most of this is ineffective or useless. There are significant differences between reading a book at the library and browsing the Internet (M.S. Mathivanan, M. Balamohan, 2024). The abundance of alternatives available online, together with the recommendations for linked websites, may easily divert one's attention. On the other hand, a library provides a calm and peaceful setting that encourages

natural learning abilities and is favorable to attention and concentration. One may improve their memory and learn more efficiently by reading the book quietly and making notes on key topics. This improves the student's exam or test scores.

Quality Assurance (QA)

In a competitive capitalistic economy, quality goods and services are essential, and producers and service providers work hard to maintain their market share. In a number of industries, including manufacturing, healthcare, education, and services, standard organizations have been established as a result of the desire for quality. In service-oriented commercial or non-profit companies, quality assurance is essential since it has the power to make or break the company. A company may fail as a result of poor service delivery quality assurance. The process of presenting proof to build trust in the efficacy of quality-related initiatives is known as quality assurance. Quality assurance is defined by the ISO as all planned and methodical efforts required to provide sufficient confidence in attaining quality. Quality Assurance (QA) is essentially a strategic management function that creates policies, modifies programs to achieve objectives, and offers assurance of the efficacy of these actions (Pathak, 2023).

Quality Assurance in Libraries

Every organization prioritizes the need for high-quality system operation. Universities, colleges, research facilities, and administrative divisions all uphold some kind of service quality assurance. Among the elements that affect library quality assurance are:

- A library that should give its clientele the expected minimum services as expected in the new generation uses.
- A growing library, i.e., a library that strives to meet the minimum standard as stipulated by the supervisory agency of that establishment.
- Employment and training of personnel charged with the responsibility of running the libraries.



- Established minimum level of performance and to ensure compliance with the agreed minimum standards.
- Recognition and record of excellent performance, continuous appraisal and reappraisal of functions and services.
- Sustenance of the parent organisation and clients' confidence through proactive functions and services.

National Institute of Electronics and Information Technology (NIELIT), which is often referred to as DOEACC Society, is a scientific society that operates independently and is governed by the Department of Electronics and Information Technology (DeitY) under the Ministry of Communications and Information Technology of the Government of India. In the field of information, electronic, and communication technologies (IECT), it was founded with the purpose of carrying out activities connected to human resource development among other related activities. Shimla, Chennai, Delhi, Gangtok, Gorakhpur, Lucknow, Guwahati/Tezpur, Imphal, Itanagar, Kohima / Chuchuyimlang, Kolkata, Patna, Shillong, Srinagar/Jammu, and New Delhi are some of the areas where the Society has a presence. The Society also has 18 centers and a presence in 23 locations (Inviting et al., 2013). As the nation's leading school for examination and certification in information and communication technology (IECT), the National Institute of Electronics and Information Technology (NIELIT) is committed to producing industry-oriented quality education and training programs in state-of-the-art fields. It also serves as a National Examination Body, which is responsible for granting accreditation to institutions and organizations that provide non-formal education in the field of information technology and allied fields. The NIELIT Centres provide a variety of long-term courses in the non-formal sector, including those in Electronics Design and Technology, Embedded Systems, and other subjects. These courses are offered at the post-graduate level (M. Tech). Information Technology, Electronics Design and Technology, Manufacturing Technology, Maintenance Engineering, and Business Process Outsourcing (ITES-BPO) are some of the other shorter-term courses that they provide.

2 Literature review

According to (Onunka et al., 2023) the study, libraries struggle to adopt cutting-edge technology like linked data, balance expanding digital resources with priceless print holdings, and navigate the complicated leadership issues in a rapidly changing digital landscape. based on a number of case studies that serve as examples. A thoughtful summation that highlights the enduring value of libraries closes the



study. The core mission of libraries to educate, empower, and engage communities remains the same, regardless of the dominant technology medium or the kind of difficulties that lie ahead. This unwavering core, together with their inventiveness and tenacity, guarantees that libraries will continue to be the epitome of scholarly achievement and social development.

The research (Baryshev et al., 2020) investigated the transitional stage of societal development based on digital information and communication technology. It emphasized the significance of a digital economy paradigm in enhancing living quality. Higher education institutions are shifting from physical to virtual reality, yet the teaching environment falls behind industrial output. Universities' policies seek to establish a comprehensive environment for education and science, with libraries becoming digital. The study presented many perspectives on library development for the digital world, emphasizing the advancement of information and communication technologies while preserving conventional ways.

The article (Ilesanmi, 2013) explored into the responsibilities of research librarians, especially in this digital age. They offer a range of services, including management, preservation, information services, knowledge organization, and collection development. Digital tools are replacing traditional ways, necessitating changes in library services and goods. Budgetary restrictions, capacity building, and limited facilities are among the difficulties. Additionally, the article made recommendations for furthering the field.

This study (Masaa Kavila et al., 2024) looked at how postgraduate students at a few Kenyan institutions use the digital repositories of the university to help with their coursework. 493 respondents including 475 postgraduate students and 18 librarians were chosen by random sampling, and the qualitative data was narratively presented. The results showed that library use was significantly improved by digital repository services. The report emphasized how crucial Digital Institutional Repositories (DIRs) are to postgraduate students' library usage. It recommended that in order to promote student engagement, university administration and ICT should provide internet availability, plan frequent training, and raise librarian understanding of DIR features.

The research (Eriya, 2019) examined how staff and students at Busitema University used library resources and services. The study utilized a hybrid research strategy. The research included students and faculty from Busitema University. The research employed a sample size of 351 respondents (35 staff and 316 students). Quantitative data were examined using SPSS



v.20 software, while qualitative data were assessed using content analysis. The research concluded that Busitema University's library resources and services are underutilized. Additionally, was a positive association between perceived usefulness and convenience of use while using library resources. The research concluded that perceived utility and simplicity of use positively impact library resource and service consumption. The study concluded that

barriers to successfully accessing and using library resources and services at Busitema University include low information literacy, lack of motivation, limited training, insufficient ICT infrastructure, poor internet facilities, information overload, and inadequate funding.

This research (Michal Indrák & Pokorná, 2020) aimed to determine if this was the case by comparing the used of physical and digital libraries. The study also investigated whether all aspects of library usage change in response to the digital transformation of the library's services, what the actual implications of this trend are for research libraries in general, determining an ideal model for such a library, and proposing potential solutions to the challenges that digital transformation brings. At the same time, the research seeks to determine if the general number of library users has been declining or rising, as well as the influence that digital transformation has on the reach of library services.

This essay (ISIAKA, Abdullahi Olayinka; et al., 2024) investigated the disruptive influence of the Fourth Industrial Revolution (4IR) on libraries and their critical role in managing the difficulties and possibilities posed by fast technology breakthroughs. The Fourth Industrial Revolution (4IR) has had a profound influence on libraries, shifting their focus from conventional book collections to digital literacy, technological access, and information transportation. Rapid breakthroughs in Artificial Intelligence, the Internet of Things, as well as Data Analytics has resulted in a rethinking of libraries' mission and services. The essay covered the obstacles libraries have in adapting to the Fourth Industrial Revolution, possibilities for libraries to utilize new technology, and real-life instances of successful digital transformation. It also covers issues of data privacy and security.

2.1 Hypothesis Development

H1: Digital access and resource availability have a significant positive effect on user satisfaction.

This research (Onwukanjo & Joseph, 2017) aimed to get a better understanding of how the accessibility and availability of information resources impact user satisfaction. It is focused on undergraduate students at the Federal University of Technology Minna. A questionnaire was used as the data collecting tool in



the survey study design. Using a simple random sample methodology, 376 students were chosen from the overall population of 19,090. The T-test method was employed to analyze the hypotheses. Low user satisfaction, inadequate and outdated information resources, a lack of up-to-date awareness services, printing and

photocopying services, and subpar and non-functional information retrieval tools are all shown by the study findings. No library can meet the demands of its patrons on its own, and low user satisfaction has been caused either directly or indirectly by the outdated and inadequate information resources that are provided.

This study's (Kaba et al., 2024) primary goal was to find out how user satisfaction and experience affect users' desire to keep using digital library services. The research was conducted on information gathered via a survey questionnaire from 164 Al Ain University (AAU) academic members and students. To verify and evaluate the proposed models and hypotheses, data were examined using partial least squares structural equation modeling (PLS- SEM), factor analysis, and linear regression. The results indicated how age, gender, and status affected the perceived value, accessibility, and desire to continue using digital library resources. However, the findings showed that 55–67% of changes in the intention to continue using digital library resources are predicted and explained by both user experience and user satisfaction.

This study (Kadir et al., 2016) investigated the variables affecting the National Library of Malaysia's (NLM) used of electronic resources. Individual behavior, library employees, library services, and library technology are the four elements that had been chosen as study variables. 218 library patrons in all took part in the research survey. The results showed that user happiness is most strongly correlated with library personnel and technology. The findings showed that user experience cannot be undervalued as it influences users' interest in and propensity to regularly utilize the library's electronic resources.

H2: Service quality dimensions significantly influence user satisfaction.

This research (Sharif et al., 2021) looked at student behavior and the digital library's service quality provided by the Pakistan Higher Education Commission. 403 postgraduate students in Punjab, Pakistan, provided the data. The findings demonstrated that service quality significantly improved student satisfaction, a psychological measure of increased loyalty. Additionally, the research discovered that student satisfaction acted as a mediator between service quality and student loyalty behaviors including



readiness to pay more, word-of-mouth, and intention to return. The study suggested that the Higher Education Commission provide postgraduate students with equipment and database systems.

This study (Siregar & Syam, 2024) examined how digital service quality affects student satisfaction at the State Islamic University of North Sumatra. This study was quantitative. Data was gathered via a questionnaire. The sample has 100 responders based on the Slovin formula. The research technique was survey-based with quantitative data analysis. Data analysis techniques included data quality testing, traditional assumption testing, and hypothesis testing. The T test resulted in a higher t-count ($2.327 > 1.660$) and a lower Sig. value ($0.000 < 0.05$). The R-Square value of 0.52 indicates a significant positive impact of digital library service quality on student satisfaction at the State Islamic University of North Sumatra.

(Alam & Mezbah-ul-Islam, 2023) purposed of the research was to utilized structural equation modeling (SEM) to evaluate how service quality factors affect user satisfaction in Bangladeshi public university libraries. This research created a SEM approach using SERVQUAL, LibQUAL β , and SERVPERF instruments. It included 30 questions across five service quality dimensions and eight satisfaction items using a 7-point Likert scale to assess the influence of library service quality dimensions on user satisfaction. This model was evaluated as significant, explaining 58% of the overall variance in user satisfaction. The research found that user satisfaction at public university libraries is significantly influenced by library materials, staff competency, manner, and physical amenities.

H3: Digital literacy significantly influences user satisfaction.

This research (Idhalama et al., 2025) looked at how digital literacy practices affected user satisfaction and library service quality in Nigerian public university libraries. The research emphasized that in order to fully use digital resources, both library staff and patrons must possess digital literacy. Through a study of linked literature, the research has examined the identification of themes, trends, and gaps in previous studies on the topic of digital literacy and library services. Research has shown that when investments in digital literacy are successful, they result in both improved service delivery and more fulfilling user experiences. The report concludes with suggestions for library administration to give digital literacy programs top priority in order to improve user satisfaction and the general caliber of library services.

H4: Digital literacy moderates the relationship between service quality and user satisfaction, such that the effect of service quality on satisfaction is stronger at higher levels of digital literacy.



This research (AT AKINYEMI, 2025) examined the relationship between digital literacy competence and service quality among library professionals at federal institutions in southwest Nigeria. This study used a descriptive survey design and a mixed-method technique. The study included 243 library staff (237 library personnel and 6 university librarians) from federal universities in Southwest Nigeria. utilized total enumeration. A validated questionnaire was administered to 237 respondents from the selected institutions, and 6 librarians were interviewed. The study's reliability coefficients for Digital Literacy Competency (DLC) and Service Quality (SQ), respectively. The study found a moderate and positive correlation between digital literacy competency and service quality among library personnel in federal universities in Southwest Nigeria. The research recommended that library professionals at federal institutions in Southwest Nigeria engage in continuous training to be relevant in the digital age.

2.2 Research Gap

Even though there is a growing amount of work on the digital transformation of libraries, there are still substantial research gaps for these institutions. The majority of the work now in publication emphasizes the difficulties in embracing new technologies, the transition from physical to digital collections, and the function of libraries in addressing scholarly and public demands. But little attention has been paid to how these changes directly guarantee the quality of library services, especially in particular institutional settings like technical and professional education facilities. Although user happiness, service quality, and digital literacy have all been the subject of many studies, little research has been done on how these elements interact within dynamic digital ecosystems to provide creative, sustainable, and fair library services. Additionally, the majority of research focuses on national libraries or higher education institutions, which leaves a knowledge vacuum on how smaller, specialized libraries deal with leadership challenges, resource limitations, and user adaptability in the digital age. This highlights the necessity for context-specific research that examines the usefulness of digital technologies in guaranteeing service quality, accessibility, and user empowerment in addition to their uptake.

3 Methodology

3.1 Research design

The study used descriptive and exploratory research design to examine the A descriptive design is adopted to systematically examine the current status of library services and functions at the

NIELIT Kohima Library, while the exploratory aspect helps in identifying new strategies and practices required for quality assurance in the digital era. Data was collected from 250 respondents using a structured online questionnaire. The validated questionnaire used to gather the data consisted of Likert-scale questions. "Statistical software for the social sciences," or SPSS, was used to analyse the data. The suggested hypotheses were evaluated for structural equation modelling (SEM) using AMOS (Analysis of Moment Structures), which also looked at the relationships between the main variables.

3.2 Conceptual frame work

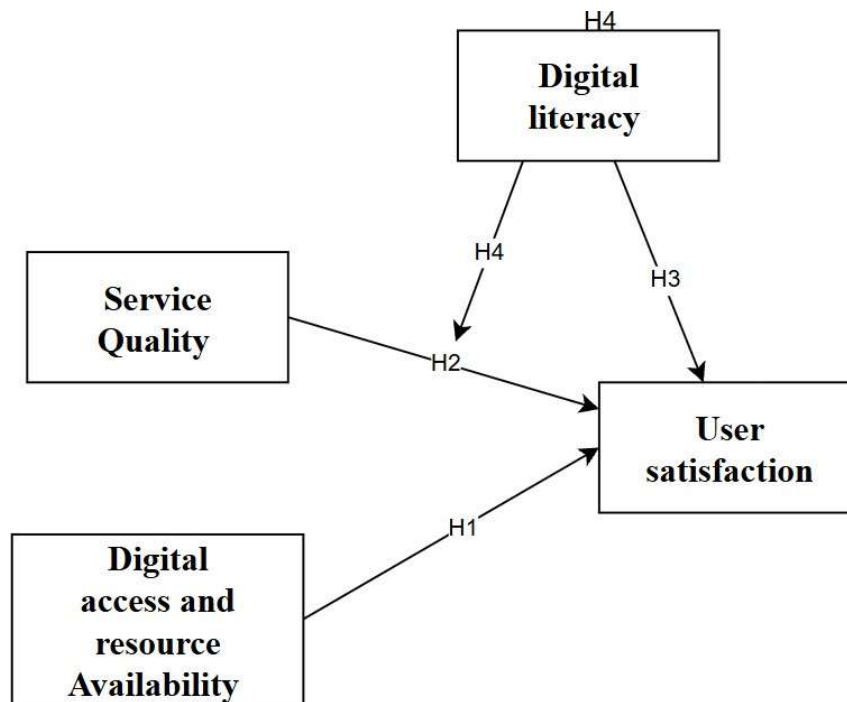


Figure 1 Conceptual frame work

3.3 Objectives

1. To identify the effect of digital access and resource availability on overall user satisfaction in the NIELIT Kohima Library.
2. To analyse the influence of service quality dimensions (reliability, responsiveness, assurance, empathy, tangibles) on user satisfaction in the digital era.
3. To examine the impact of digital literacy and staff support on user satisfaction with transformed



library services.

4. To investigate whether digital literacy moderates the relationship between service quality and user satisfaction.

3.4 Hypothesis

H1a: Digital access and resource availability have a significant positive effect on user satisfaction.

H1b (Null): Digital access and resource availability do not significantly affect user satisfaction

H2a: Service quality dimensions significantly influence user satisfaction.

H2b (Null): Service quality dimensions do not significantly influence user satisfaction

H3a: Digital literacy significantly influence user satisfaction.

H3b (Null): Digital literacy do not significantly influence user satisfaction

H4a: Digital literacy moderates the relationship between service quality and user satisfaction, such that the effect of service quality on satisfaction is stronger at higher levels of digital literacy.

H4b (Null): Digital literacy does not significantly moderate the relationship between service quality and user satisfaction.

3.5 Sample selection

The study's sample size was 250 participants, chosen by a stratified random selection technique that uses purposive sampling to find people that are closely connected to the NIELIT Kohima Library. To guarantee that a variety of stakeholders are adequately represented, the sample size is decided. A fair assessment of the experiences of service providers and patrons in the evolution of library services is made possible by this choice.

3.6 Data collection

This research used a quantitative approach, ensuring accuracy and reliability via the use of systematic data collection methodologies. A standardized several Likert-scale observations questionnaire was used as the main tool for collecting data in order to evaluate the Transforming library service and function in



the NIELIT Kohima Library for assuring of quality in this digital era: An observation. Important questionnaire elements are Digital Access & Resource Availability, Service Quality Dimensions, Digital Literacy and User Satisfaction. Google Forms was used to collect 250 legitimate replies. Secondary data was collected from library records, reports, annual statistics, and relevant documents, along with a review of existing literature, including books, research articles, and case studies related to digital library services and quality assurance.

3.7 Measures

Data has been gathered with the help of a structured questionnaire. Questionnaire has been prepared using 5 Likert-scale (Strongly disagree to Strongly agree) where respondents will be asked to share their opinions regarding various research questions under study. Questionnaire has a set of both open ended and closed ended questions. Questions have been carefully crafted so as to gather meaningful information with respect to identified research variables. There are five categories of respondents in the survey and a separate questionnaire has been designed for each category of respondents. The bellow mention table show variables and no. items considered for the study.

S. No	Variable Name	No. Items
1	Digital Access & Resource Availability	5
2	Service Quality Dimensions	5
3	Digital Literacy	5
4	User Satisfaction	5

4 Results

The study's findings include the demographic profile of the participants and the results of the structural equation modelling used to evaluate the hypotheses. The demographic analysis indicates an equitable distribution across age, gender, education, occupation, and library usage frequency, so maintaining sample representativeness. The following hypothesis testing investigates the influence of digital access, resource availability, service quality, and digital literacy on user happiness. Regression coefficients and model fit indices are presented to evaluate the strength and significance of associations, with results consistently demonstrating strong and positive impacts among the variables. The research underscores



the direct and moderating effects of service quality and digital literacy on user happiness, so providing empirical validation for the study's conceptual framework.

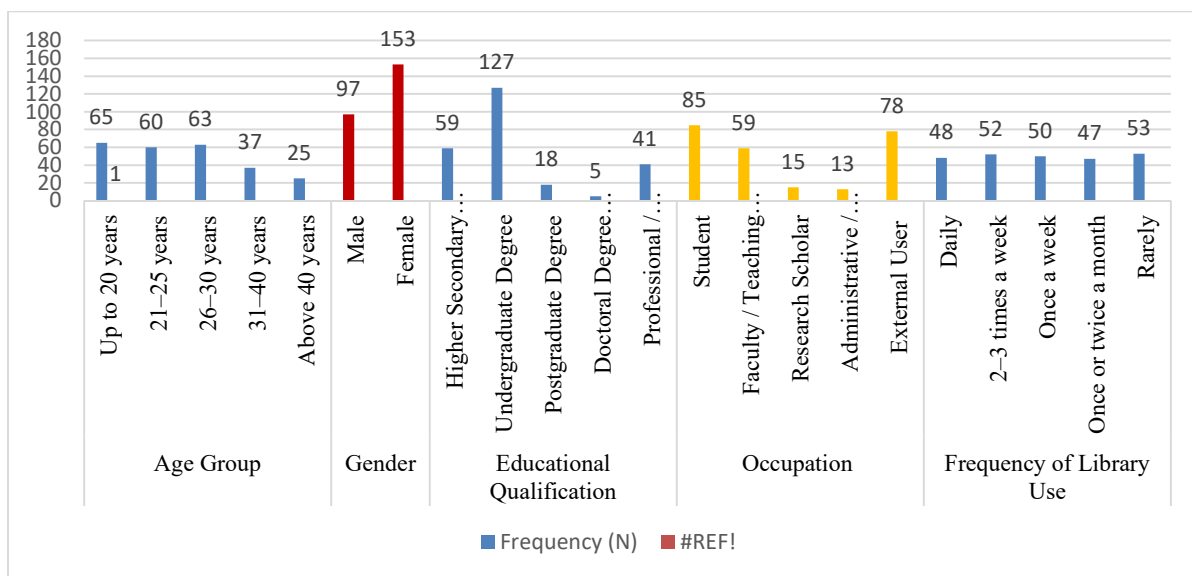
Table 1 Demographic variables

Demographic Variable	Category	Frequency (N)	Percentage (%)
Age Group	Up to 20 years	65	26
	21–25 years	60	24
	26–30 years	63	25.2
	31–40 years	37	14.8
	Above 40 years	25	10
	Total	250	100
Gender	Male	97	38.8
	Female	153	61.2
	Total	250	100
Educational Qualification	Higher Secondary (Class 12)	59	23.6
	Undergraduate Degree	127	50.8
	Postgraduate Degree	18	7.2
	Doctoral Degree (PhD/MPhil)	5	2
	Professional / Technical Qualification	41	16.4
	Total	250	100
Occupation / User Category	Student	85	34
	Faculty / Teaching Staff	59	23.6
	Research Scholar	15	6
	Administrative / Non-Teaching Staff	13	5.2
	External User (public/industry/professional)	78	31.2
	Total	250	100
Frequency of Library Use	Daily	48	19.2

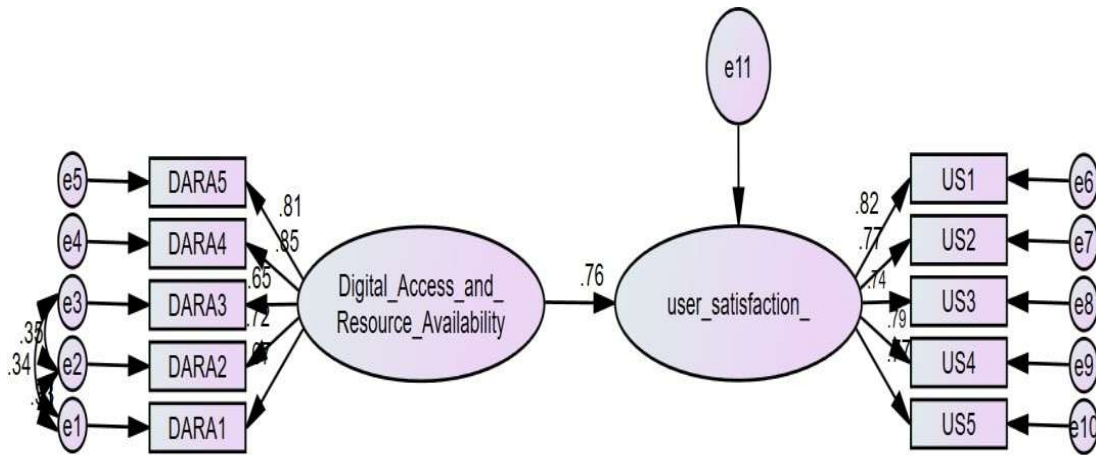


2–3 times a week	52	20.8
Once a week	50	20
Once or twice a month	47	18.8
Rarely	53	21.2
Total	250	100

The demographic profile of the 250 respondents shows a diverse distribution across age, gender, education, occupation, and library usage patterns. Most participants belonged to the age groups up to 20 years (26%), 21–25 years (24%), and 26–30 years (25.2%), while smaller proportions fell in the 31–40 years (14.8%) and above 40 years (10%) categories. The sample had a higher representation of female respondents (61.2%) compared to males (38.8%). In terms of educational qualifications, more than half of the respondents held an undergraduate degree (50.8%), followed by higher secondary education (23.6%), professional/technical qualifications (16.4%), postgraduate degrees (7.2%), and a smaller proportion with doctoral degrees (2%). With respect to occupation, students represented the largest share (34%), followed by external users including public, industry, and professional visitors (31.2%), faculty members (23.6%), while research scholars (6%) and administrative/non-teaching staff (5.2%) formed comparatively smaller segments. The frequency of library usage shows varied engagement, with 21.2% visiting rarely, 20.8% visiting two to three times a week, 20% once a week, 19.2% daily, and 18.8% once or twice a month. Overall, the demographic data reflect a predominantly young, academically qualified, and female-dominated respondent group with diverse occupational backgrounds and varying levels of library utilization.



H1: Digital access and resource availability have a significant positive effect on user satisfaction.



Regression Weights: (Group number 1 - Default model)

Path	Standard Estimate	S.E.	C.R.	P
User satisfaction <--- Digital Access and Resource Availability	.757	.070	11.044	***

The analysis indicates that digital access and resource availability exert a substantial and considerable beneficial influence on user satisfaction. The standard estimate of 0.757 signifies that enhancements in digital access and resource availability significantly elevate user satisfaction levels. The crucial ratio value of 11.044, significantly exceeding the allowed

threshold, substantiates the strength of this association. The standard error of 0.070 indicates stability in the estimate, while the significance level ($p < 0.001$) confirms the statistical importance of the effect. This indicates that enhanced digital access and resource availability are crucial in augmenting overall user satisfaction.

model fit Summery

CMIN	DF	CMIN/DF	GFI	NFI	RFI	IFI	CFI	RMR	RMSEA
43.125	31	1.391	.977	.980	.972	.994	.994	.020	.032

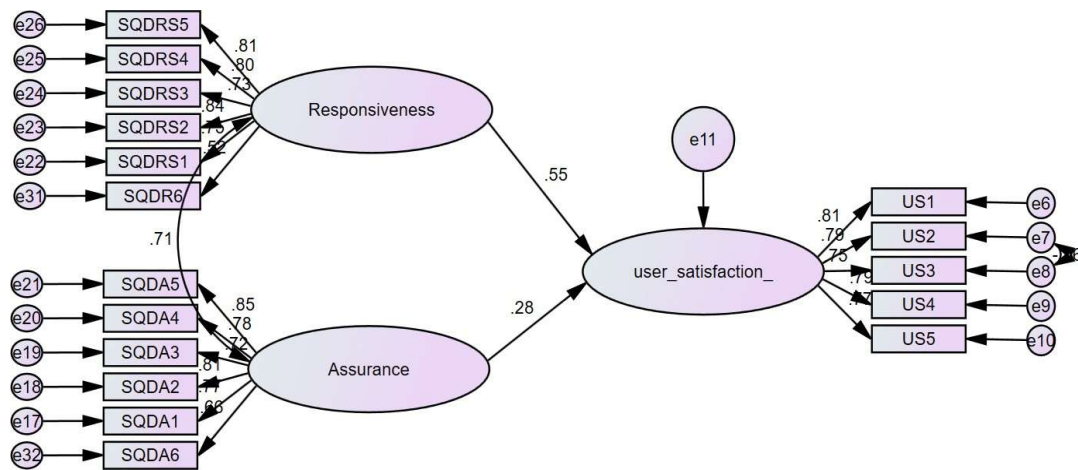
The model fit indices suggest that the structural model exhibits a strong alignment with the data. The chi-square statistic is 43.125 with 31 degrees of freedom, yielding a CMIN/DF ratio of 1.391, which is within



the acceptable range and indicates a favourable model fit. The goodness-of-fit index (GFI) is 0.977, the normed fit index (NFI) is 0.980, and the relative fit index (RFI) is 0.972, all surpassing the required threshold of 0.90, indicating robust model adequacy. The incremental fit index (IFI) and comparative fit index (CFI) both register at 0.994, signifying exceptional incremental fit. The root mean square residual (RMR) is 0.020, indicating a negligible discrepancy between observed and projected values. The root mean square error of approximation (RMSEA) is 0.032, below the recommended threshold of 0.05, indicating a strong fit of the model to the data. These results show that the model offers a strong and well-fitting representation.

H2: Service quality dimensions significantly influence user satisfaction.

Regression Weights: (Group number 1 - Default model)



Path	Standard Estimate	S.E.	C.R.	P
User satisfaction <--- Responsiveness	.555	.057	8.050	***
User satisfaction <--- Assurance	.282	.052	4.427	***

The findings of the structural equation model demonstrate that both responsiveness and certainty significantly enhance user satisfaction. The relationship between responsiveness and user satisfaction has a standardized estimate of 0.555, a standard error of 0.057, and a critical ratio of 8.050, indicating a significant effect with a p value below 0.001. The relationship between assurance and user happiness has a standardized estimate of 0.282, a standard error of 0.052, and a critical ratio of 4.427, which is significant with a p-value below 0.001. These findings indicate that responsiveness significantly



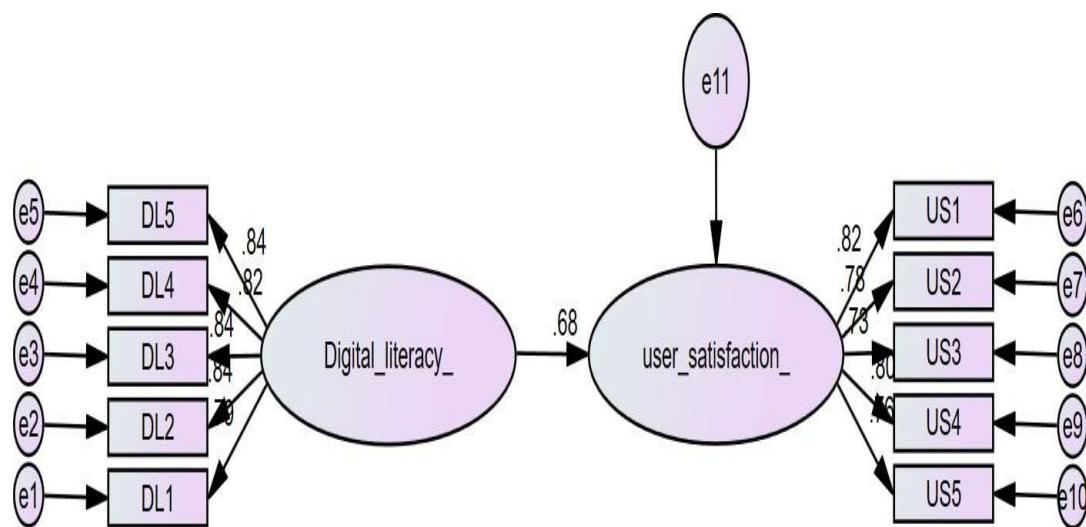
influences user satisfaction more than assurance, but both characteristics are statistically significant contributors.

model fit Summery

CMIN	DF	CMIN/DF	GFI	NFI	RFI	IFI	CFI	RMR	RMSEA
209.801	115	1.824	.940	.947	.938	.976	.975	.037	.046

The model fit indices demonstrate an adequate overall fit of the measurement model. The chi- square statistic is 209.801 with 115 degrees of freedom, yielding a chi-square to degrees of freedom ratio (CMIN/DF) of 1.824, which is below the suggested threshold of 3, indicating a favorable model fit. The goodness of fit index (GFI) is 0.940, while the normed fit index (NFI) and relative fit index (RFI) are 0.947 and 0.938, respectively, all surpassing the acceptable threshold of 0.90, indicating that the model exhibits robust comparative fit. The incremental fit index (IFI) of 0.976 and the comparative fit index (CFI) of 0.975 demonstrate an outstanding fit, since both above the 0.95 threshold. The root mean square residual (RMR) is 0.037, indicating minimum residuals, while the root mean square error of approximation (RMSEA) is 0.046, below the 0.05 threshold, signifying a close model fit relative to the degrees of freedom. The indices jointly indicate that the model exhibits a robust and satisfactory fit to the data.

H3: Digital literacy significantly influences user satisfaction.



Regression Weights: (Group number 1 - Default model)



Path		Standard Estimate	S.E.	C.R.	P
User satisfaction	<--- Digital literacy	.678	.052	11.426	***

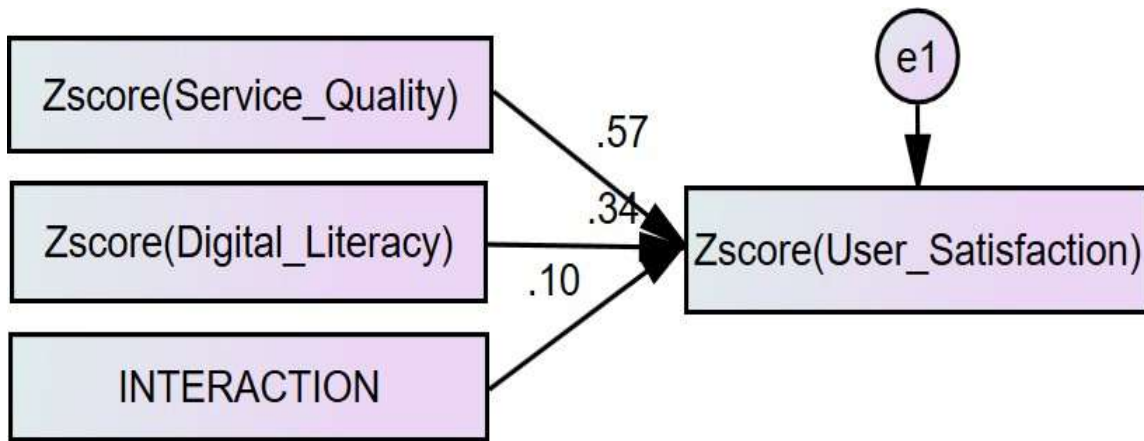
The data indicates that digital literacy substantially enhances user pleasure. The standardized estimate of 0.678 signifies a strong correlation, indicating that increased digital literacy significantly improves user satisfaction. The standard error of 0.052 indicates the precision of this estimate, however the critical ratio value of 11.426 signifies that the effect is highly significant. The p-value is below 0.001, demonstrating the strength of the association. The findings underscore that digital literacy is essential for user pleasure, highlighting the necessity of enhancing digital abilities to elevate user experiences.

model fit Summery

CMIN	DF	CMIN/DF	GFI	NFI	RFI	IFI	CFI	RMR	RMSEA
80.051	34	2.354	.958	.968	.957	.981	.981	.025	.059

The model fit indices reveal a chi-square value (CMIN) of 80.051 with 34 degrees of freedom, yielding a CMIN/DF ratio of 2.354, which is within the acceptable range, indicating a satisfactory model fit. The goodness-of-fit index (GFI) is 0.958, and the normed fit index (NFI) and relative fit index (RFI) are 0.968 and 0.957, respectively, all beyond the recommended threshold of 0.90, indicating robust model adequacy. Likewise, the incremental fit index (IFI) and comparative fit index (CFI) also register at 0.981, thereby reinforcing an exceptional fit. The root mean square residual (RMR) is 0.025, which is low and acceptable, while the root mean square error of approximation (RMSEA) is 0.059, signifying a close and appropriate model approximation. These results show that the model exhibits a strong alignment with the data.

H4: Digital literacy moderates the relationship between service quality and user satisfaction, such that the effect of service quality on satisfaction is stronger at higher levels of digital literacy.



Regression Weights: (Group number 1 - Default model)

Path	Standard Estimate	S.E.	C.R.	P
ZUser Satisfaction <--- ZService Quality	.572	.034	15.121	***
ZUser Satisfaction <--- ZDigital Literacy	.339	.034	8.974	***
ZUser Satisfaction <--- INTERACTION	.101	.024	2.679	.007

The structural model findings demonstrate that service quality, digital literacy, and their interplay significantly influence user satisfaction. The relationship between service quality and user happiness exhibits a standardized estimate of 0.572, a standard error of 0.034, and a critical ratio of 15.121, indicating a robust positive effect with a p-value below 0.001. Digital literacy also enhances user happiness, evidenced by a standardized estimate of 0.339, a standard error of 0.034, and a critical ratio of 8.974, all significant at a p value below 0.001. The interaction term has a modest but substantial positive impact on user satisfaction, evidenced by a standardized estimate of 0.101, a standard error of 0.024, a critical ratio of 2.679, and a p-value of 0.007. These findings underscore that both service quality and digital literacy alone augment user satisfaction, while their synergistic effect significantly influences user experiences.

5 Discussion

The research emphasizes how important digital literacy, service quality, and access are in determining user happiness in the context of the NIELIT library. Given that users depend more and more on quick and easy access to digital resources for their academic, professional, and personal development, the findings unequivocally demonstrate that digital access and resource availability are powerful predictors of happiness. This is in line with worldwide trends that highlight the need of investing in digital infrastructure to fulfill changing user expectations as libraries transition from conventional repositories to



digital information centers. The contribution of aspects of service quality, especially assurance and responsiveness, to satisfaction levels is equally significant. In terms of prompt support and prompt resolution of user inquiries, responsiveness proved to be a more significant factor than certainty. This conclusion implies that customers place a higher value on prompt and effective assistance than just institutional legitimacy, underscoring the need for ongoing staff training and user-centered service methodologies. Additionally, the survey emphasizes how important digital literacy is to user pleasure. Better experiences and results were reported by users who were more digitally competent, indicating that satisfaction depends not just on institutional resources but also on an individual's capacity to use and navigate digital platforms. This aligns with current library practices that emphasize digital literacy initiatives as a fundamental component of user empowerment and participation. Additionally, the moderating effect of digital literacy in the link between user satisfaction and service quality shows that higher levels of digital proficiency among users have a greater influence on service quality. Put another way, if patrons lack digital competency, even the finest library services could not provide the highest level of happiness. This discovery is especially pertinent in the context of North-East India, where socioeconomic and infrastructure disparities cause a large range of digital literacy levels. Therefore, libraries must actively contribute to the development of user capabilities in addition to improving the quality of their services.

6 Conclusion

The research comes to the conclusion that three major factors digital literacy, service quality dimensions, and digital access and resource availability significantly influence user satisfaction in NIELIT libraries. The largest factor among them is digital access, highlighting the urgent

need for reliable technology infrastructure and constant access to online resources. As aspects of service quality, responsiveness and assurance are equally important, with responsiveness having a greater impact on customer satisfaction. Not only is digital literacy a direct factor, but it also acts as a moderator to improve the correlation between customer happiness and service quality. This research emphasizes the double duty of libraries: providing high-quality services while also giving patrons the digital skills they need to fully use them. Practically speaking, the findings suggest specific tactics include modernizing digital infrastructure, creating user-centered services, holding training on digital literacy, and embracing cutting-edge technology to satisfy a range of user demands. The research offers administrators and policymakers proof that spending on service enhancements and digital capacity-building directly increases user happiness and, as a result, improves quality assurance. In summary, the study supports the



notion that libraries in the digital age need to transcend their conventional functions and serve as hubs for digital empowerment and integrated learning. NIELIT libraries may guarantee long-term relevance, inclusiveness, and excellence in their service delivery by coordinating digital resources, service quality, and user skills.

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