

Use of Digital Library Resources Among University Students in Varanasi: A Survey-Based Study

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Abstract: Digital libraries have become a central route to scholarly information, yet availability alone does not ensure meaningful use. This model study examines awareness, access, digital literacy, perceived ease of use, perceived usefulness, service quality, satisfaction and continuance intention among university students in Varanasi. A synthetic cross-sectional dataset of 250 students was constructed across Banaras Hindu University (n = 100), Mahatma Gandhi Kashi Vidyapith (n = 85) and Sampurnanand Sanskrit University (n = 65). Twenty-one Likert-type items represented seven constructs. Reliability analysis, exploratory factor analysis, observed-variable path analysis, bootstrap mediation, log-linear regression and Kruskal-Wallis tests were applied. Internal consistency was satisfactory (Cronbach's alpha = .813-.838); sampling adequacy was high (KMO = .895), and Bartlett's test was significant (chi-square = 2590.59, df = 210, p < .001). The model explained 41.9% of satisfaction and 44.8% of continuance intention. Perceived usefulness and service quality were the strongest direct correlates of satisfaction, while satisfaction was the strongest predictor of continued use. The simulated evidence also suggested that e-books and e-journals were the most frequently used resources, whereas discovery databases were comparatively underused. The study framework demonstrates how a locally grounded survey can move beyond descriptive percentages to test the mechanisms underlying sustained digital-library engagement. Because all results are simulated, the paper is a methodological template rather than an empirical account of students in Varanasi.

Keywords: Academic Libraries; Digital Resources; Electronic Information Resources; Information-Seeking Behaviour; Technology Acceptance; University Students; Varanasi.

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I. INTRODUCTION

University libraries increasingly organise access to e-journals, e-books, databases, institutional repositories, theses, reference sources and open educational materials through digital interfaces. Their value, however, depends on more than subscription volume. Students must know that resources exist, possess the skills to search them, obtain reliable access, judge interfaces as manageable, and experience content and support that are useful for academic work.

The Technology Acceptance Model proposes that perceived usefulness and perceived ease of use shape technology acceptance (Davis, 1989). Digital-library research has extended this logic by showing that individual differences, interface characteristics and organisational support influence adoption (Hong et al., 2002; Thong et al., 2002). Information-systems success research further identifies information quality, system quality and service quality as foundations of satisfaction and use (DeLone & McLean, 2003). Continuance theory adds a crucial distinction: initial use is not the same as sustained use, which

depends strongly on satisfaction and confirmation of expectations (Bhattacharjee, 2001; Joo & Choi, 2016).

Varanasi offers a useful setting because its universities differ in disciplinary orientation, historical development and student composition. A comparative local survey can therefore identify shared barriers while allowing institutions to tailor information-literacy training, discovery interfaces, remote access and user support. The present paper provides a complete analytical model for such an investigation. It does not claim that the simulated values represent actual students.

II. REVIEW OF LITERATURE AND CONCEPTUAL FOUNDATION

➤ Acceptance and Use of Digital Libraries

Davis (1989) established perceived usefulness and ease of use as central beliefs in technology acceptance. The UTAUT framework later integrated performance expectancy, effort expectancy, social influence and facilitating conditions (Venkatesh et al., 2003). In a digital-library context, Hong et al. (2002) found that computer self-efficacy, search-domain knowledge and system characteristics operate through

usefulness and ease of use. Thong et al. (2002) similarly demonstrated that interface, organisational and individual factors help explain digital-library acceptance.

➤ *Quality, Satisfaction and Continuance*

DeLone and McLean's (2003) updated success model links information, system and service quality with use, satisfaction and net benefits. For online library resources, Joo and Choi (2016) showed that resource quality, usefulness and confirmation influence continuance directly and indirectly through satisfaction. Recent Indian evidence likewise indicates that digital-library system quality can influence continuous usage through satisfaction, with academic involvement providing contextual moderation (Misra et al., 2023).

➤ *Digital Literacy and Academic Reading*

Digital literacy is both a personal capability and an institutional responsibility. Students may have everyday familiarity with devices without possessing advanced search, evaluation, citation and access skills. Lin et al. (2023) extended acceptance modelling to digital academic reading and found that contextual and psychological factors add explanatory value beyond the original acceptance model. In library settings, structured orientation and embedded training can therefore transform nominal access into effective use.

➤ *Research Gap*

Many user studies remain limited to frequencies and mean rankings. Such evidence identifies what students use

but not why patterns persist. The proposed Varanasi study integrates literacy, access, technology beliefs, service quality, satisfaction and continuance in one testable model and combines measurement diagnostics with explanatory and comparative analyses.

III. OBJECTIVES AND HYPOTHESES

- To describe the profile, access conditions and digital-resource use of university students in Varanasi.
- To assess the reliability and factor structure of a multidimensional digital-library-use instrument.
- To determine the effects of digital literacy, accessibility, ease of use, usefulness and service quality on user satisfaction.
- To examine whether satisfaction mediates the relationship between perceived usefulness and continuance intention.
- To compare satisfaction and usage intensity across the three selected universities.

H1: Digital literacy positively predicts user satisfaction. H2: Accessibility positively predicts user satisfaction. H3: Perceived ease of use positively predicts user satisfaction. H4: Perceived usefulness positively predicts user satisfaction. H5: Service quality positively predicts user satisfaction. H6: User satisfaction positively predicts continuance intention. H7: Satisfaction mediates the relationship between usefulness and continuance intention.

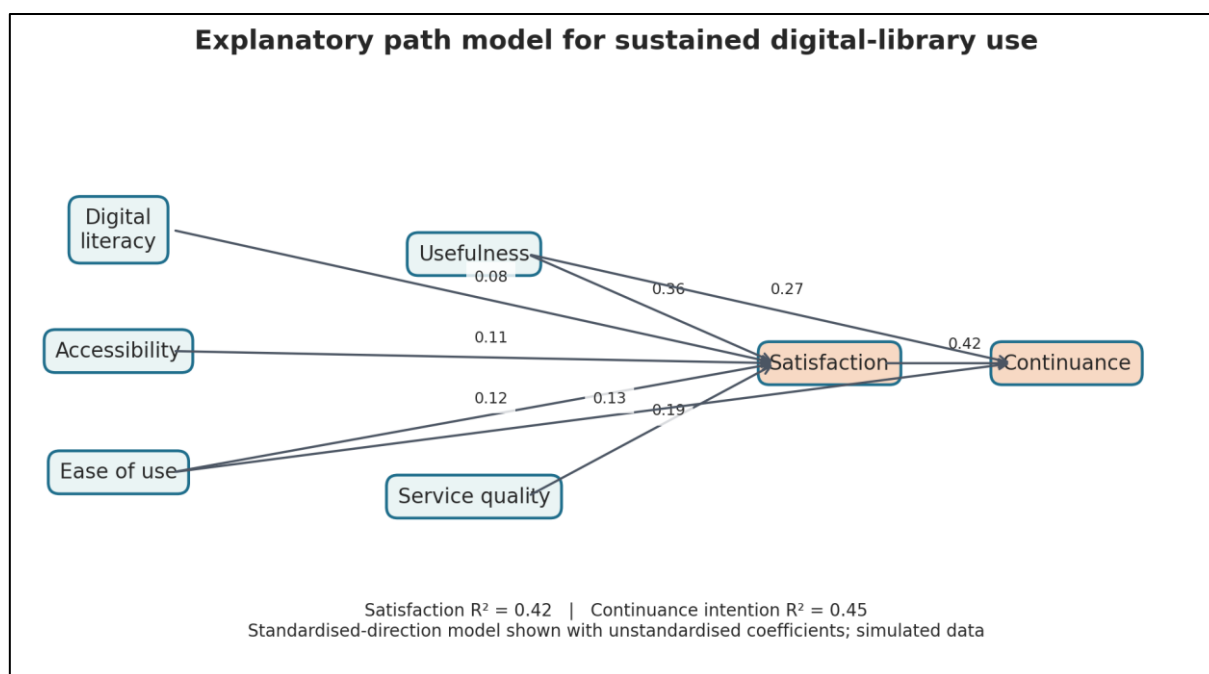


Fig 1. Explanatory Path Model Estimated from Simulated Survey Data.

IV. MATERIALS AND METHODS

➤ *Research Design and Setting*

The proposed empirical study is a cross-sectional, institution-stratified student survey. The model dataset contains 250 cases distributed across Banaras Hindu

University (100), Mahatma Gandhi Kashi Vidyapith (85) and Sampurnanand Sanskrit University (65). In an actual study, enrolment lists or verified class registers should form the sampling frame, and respondents should be selected proportionately within university and level of study.

➤ Simulation Protocol

Synthetic records were generated with a fixed random seed (14082026). Seven correlated latent tendencies were created and converted into 21 ordinal responses on a five-point scale. Small, theory-consistent effects were introduced for prior library training, device access and internet reliability. Usage hours and resource indicators were then generated as functions of access, literacy and satisfaction plus random variation. This protocol produces internally coherent demonstration data without reproducing or disclosing information about any real person.

➤ Instrument

The questionnaire has four parts: demographic and academic profile; access and training; resource-use pattern; and seven three-item constructs. Responses range from 1 = strongly disagree to 5 = strongly agree. Construct scores are arithmetic means, with higher scores indicating more favourable conditions or perceptions. Items are adapted conceptually from established acceptance, success and continuance models, but wording should be pilot-tested locally before field administration.

Table 1 Illustrative Content

Construct	Illustrative content	Items
Digital literacy	Searching, evaluating and using digital scholarly information	DL1-DL3
Accessibility	Off-campus access, internet continuity and device availability	AC1-AC3
Perceived ease of use	Learning, navigation and search effort	PE1-PE3
Perceived usefulness	Academic efficiency, quality and performance	PU1-PU3
Service quality	Reliability, content relevance and library support	SQ1-SQ3
User satisfaction	Overall experience and expectation fulfilment	US1-US3
Continuance intention	Future and regular use	CI1-CI3

➤ Statistical Analysis

Analysis proceeded in six stages. First, frequencies, percentages, means and standard deviations described the sample. Second, Cronbach's alpha assessed internal consistency. Third, exploratory factor analysis used standardised items and varimax rotation; factorability was examined through the Kaiser-Meyer-Olkin index and Bartlett's test. Fourth, observed-variable path equations estimated satisfaction and continuance intention from construct scores. Fifth, 3,000 bootstrap resamples estimated the indirect effect of usefulness through satisfaction. Sixth, log-linear regression modelled weekly usage hours, while Kruskal-Wallis tests compared institutions without assuming

normally distributed outcomes. Two-sided p values below .05 were considered statistically significant. In a field study, confirmatory factor analysis and measurement invariance should be added before formal cross-university latent-mean comparisons.

V. RESULTS

➤ Sample Characteristics

Table 1. Profile of Respondents (n = 250)

Characteristic	Category	n	%
University	Banaras Hindu University	100	40.0
University	Mahatma Gandhi Kashi Vidyapith	85	34.0
University	Sampurnanand Sanskrit University	65	26.0
Study Level	Undergraduate	139	55.6
Study Level	Postgraduate	85	34.0
Study Level	Doctoral	26	10.4
Gender	Male	136	54.4
Gender	Female	108	43.2
Gender	Other / prefer not to say	6	2.4
Residence	Urban	138	55.2
Residence	Rural / peri-urban	112	44.8
Library Training	No	136	54.4
Library Training	Yes	114	45.6
Internet Quality	Reliable	122	48.8
Internet Quality	Intermittent	104	41.6
Internet Quality	Poor	24	9.6

➤ Digital-Resource Use

E-books were the most frequently reported resource (72.8%), followed by e-journals (65.2%) and NDLI/shared open resources (63.2%). Discovery databases recorded the lowest simulated reach (43.6%). The pattern suggests that training should not focus only on access; it should also demonstrate database selection, controlled searching, filters, citation chaining and full-text retrieval.

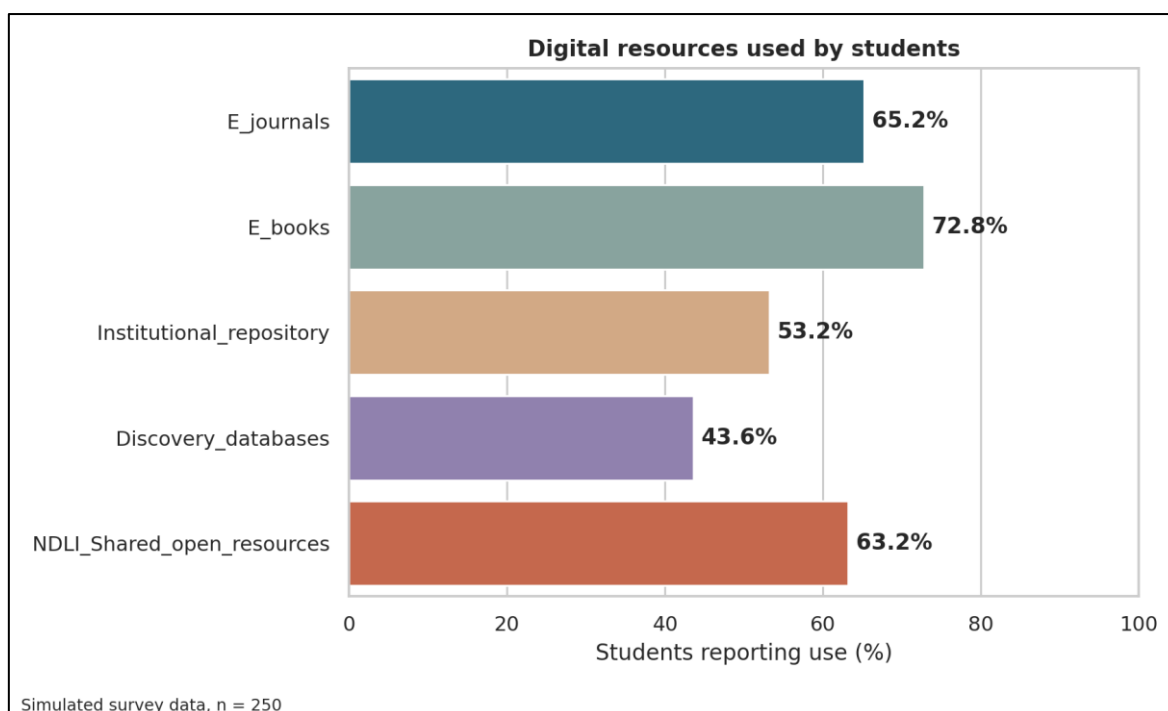


Fig 2. Percentage of Students Using Selected Digital Resources (Simulated).

➤ *Reliability and Factorability*

Table 2. Descriptive Statistics and Internal Consistency of Constructs

Construct	Mean	SD	Cronbach's alpha
Digital literacy	3.50	1.12	0.831
Accessibility	3.23	1.13	0.828
Perceived ease of use	3.12	1.14	0.819
Perceived usefulness	3.00	1.13	0.819
Service quality	3.10	1.17	0.838
User satisfaction	3.17	1.13	0.813
Continuance intention	3.08	1.16	0.835

Cronbach's alpha ranged from 0.813 to 0.838, indicating satisfactory internal consistency. The KMO value was 0.895, and Bartlett's test was significant, $\chi^2(210) = 2590.59$, $p < .001$. The retained multidimensional solution accounted for 75.3% of common item variation in this demonstration. These diagnostics support the instrument's use for explanatory analysis, although confirmatory validation remains essential with actual field data.

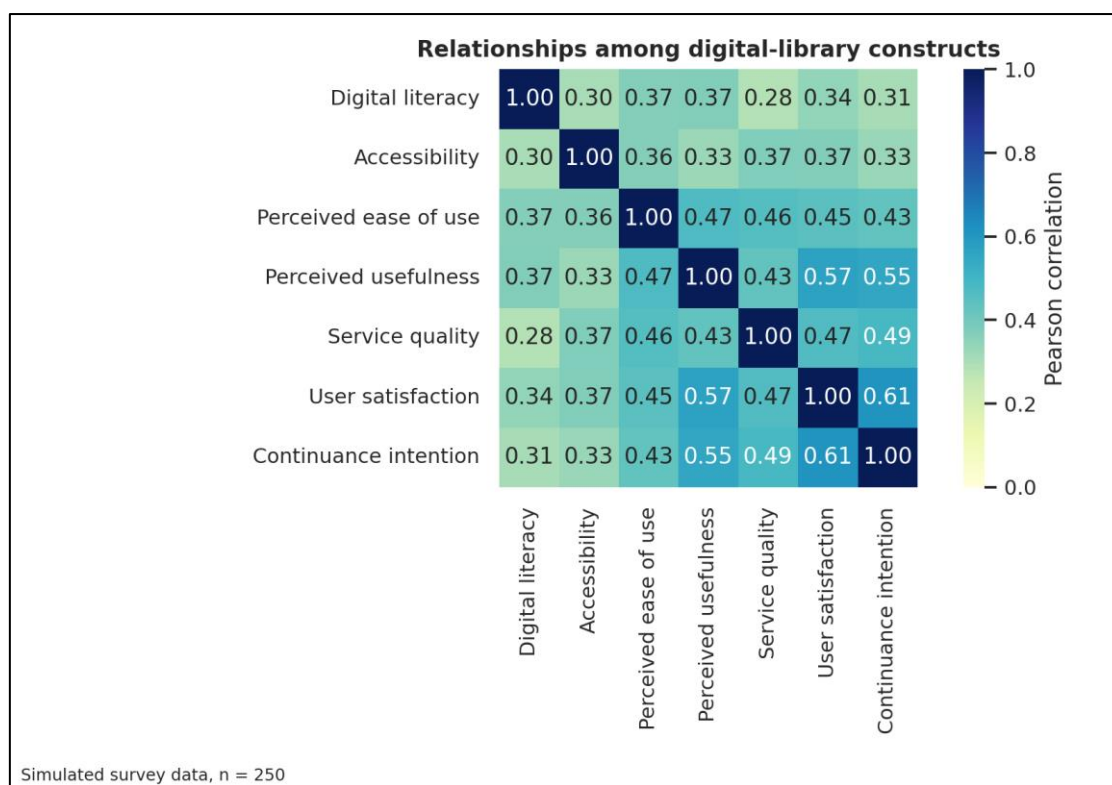


Fig 3. Correlations Among Study Constructs (Simulated).

➤ Predictors of Satisfaction and Continuance

Table 3. Observed-Variable Path Estimates

Outcome	Predictor	B	SE	t	p
User satisfaction	Digital literacy	0.077	0.055	1.40	0.163
User satisfaction	Accessibility	0.111	0.055	2.02	0.044
User satisfaction	Perceived ease of use	0.115	0.060	1.93	0.055
User satisfaction	Perceived usefulness	0.363	0.059	6.19	<.001
User satisfaction	Service quality	0.186	0.056	3.30	0.001
Continuance intention	Perceived usefulness	0.268	0.062	4.34	<.001
Continuance intention	User satisfaction	0.419	0.061	6.83	<.001
Continuance intention	Perceived ease of use	0.131	0.057	2.31	0.022

The satisfaction equation explained 41.9% of variance. Perceived usefulness ($B = 0.363$, $p < .001$) and service quality ($B = 0.186$, $p = .001$) were the strongest significant predictors. Accessibility contributed a smaller positive effect ($p = .044$); ease of use was borderline ($p = .055$), while the unique effect

of digital literacy was not significant after the other constructs were controlled ($p = .163$). The continuance equation explained 44.8% of variance. Satisfaction was the strongest predictor ($B = 0.419$, $p < .001$), followed by usefulness and ease of use.

The bootstrapped indirect effect of usefulness on continuance through satisfaction was 0.256; its 95% bootstrap confidence interval [0.175, 0.347] excluded zero. The simulated model therefore supports partial mediation and illustrates why libraries should monitor experience and satisfaction, not merely logins or downloads.

➤ Institutional Comparison

Table 4. University-Level Summary

University	n	Satisfaction	Continuance	Weekly hours
Banaras Hindu University	100	3.13	3.06	4.20
Mahatma Gandhi Kashi Vidyapith	85	3.21	3.13	4.13
Sampurnanand Sanskrit University	65	3.18	3.06	4.05

The three institutions showed only small descriptive differences. Kruskal-Wallis tests did not indicate meaningful between-university separation in satisfaction or weekly use in the simulated data. This is deliberate: university labels should

not be interpreted as performance rankings. An actual study should adjust comparisons for discipline, study level, residence, access conditions and prior training.

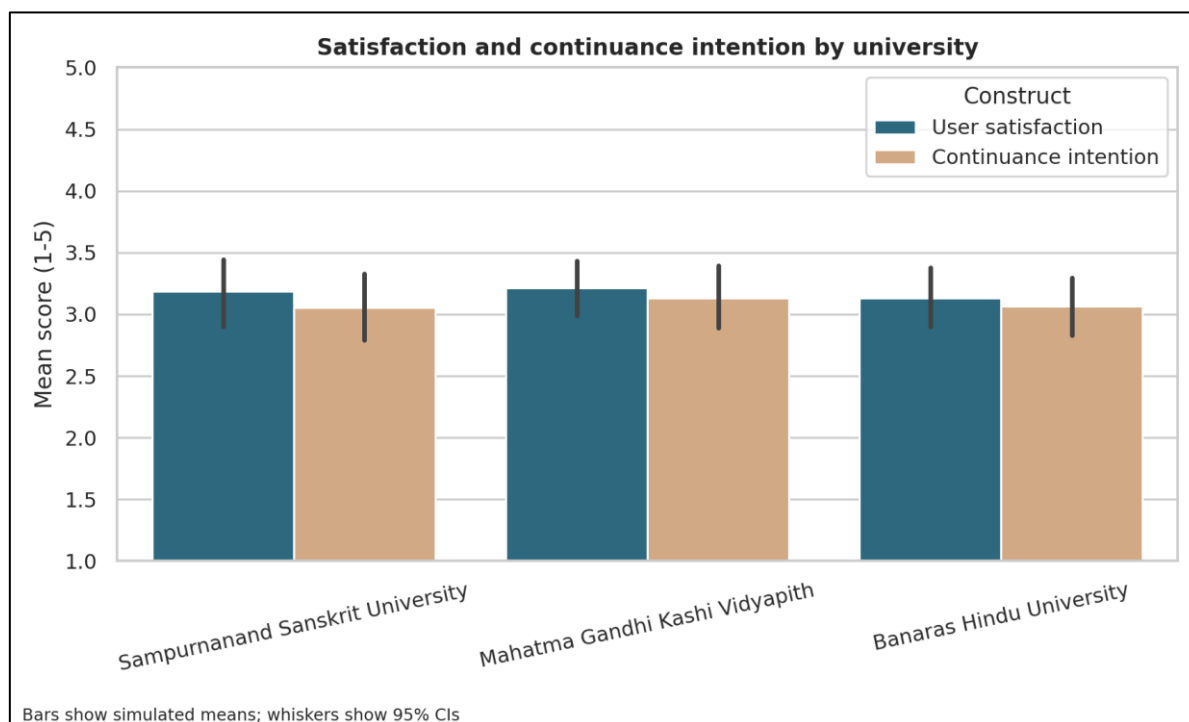


Fig 4. Satisfaction and Continuance Intention by University (Simulated).

VI. DISCUSSION

The simulated results illustrate a coherent mechanism: students are more likely to continue using digital-library resources when they find them academically useful and experience reliable content and support, because these conditions raise satisfaction. This is consistent with acceptance research that positions usefulness as a core belief (Davis, 1989; Hong et al., 2002), with the information-systems success model's emphasis on quality (DeLone & McLean, 2003), and with continuance research identifying satisfaction as a proximal driver of future use (Bhattacharjee, 2001; Joo & Choi, 2016).

Digital literacy may still matter even when its unique regression coefficient becomes non-significant. Literacy overlaps with ease of use, access and usefulness, and may therefore operate indirectly or as an enabling condition. The practical implication is not to abandon training, but to design training around authentic academic tasks: locating a systematic review, finding cited and citing documents, accessing subscribed content off campus, evaluating a journal, managing references and using repositories responsibly.

The simulated resource pattern also distinguishes familiar formats from discovery systems. Students may readily recognise e-books and e-journals yet underuse specialised databases. Libraries should therefore measure not only whether a resource was used, but the depth, purpose and success of that use. COUNTER-compliant usage statistics,

discovery logs and short qualitative interviews can complement survey responses, subject to privacy and governance requirements.

VII. PRACTICAL IMPLICATIONS

- Introduce a credit-linked digital and information-literacy module differentiated for undergraduate, postgraduate and doctoral students.
- Offer bilingual micro-guides and short videos on authentication, advanced search, repositories, citation tools and responsible use of generative AI.
- Create a single, mobile-responsive discovery gateway with clear off-campus access and visible help channels.
- Use quarterly user-experience dashboards combining satisfaction, successful access, resource reach, training participation and unresolved support issues.
- Develop discipline-specific database clinics with faculty participation so that usefulness is demonstrated through real assignments and research problems.
- Retain alternative access routes and assisted services for students affected by intermittent connectivity or device limitations.

VIII. LIMITATIONS AND FUTURE RESEARCH

The principal limitation is fundamental: the dataset is simulated, so no substantive claim can be made about students, universities or libraries in Varanasi. The assumed allocation is not based on verified enrolment proportions, and

the generated correlations reflect theory-informed design choices. A future field study should use probability-based sampling where feasible, translate and back-translate the instrument if Hindi administration is planned, conduct cognitive interviews and a pilot test, report non-response, test confirmatory measurement models, establish measurement invariance, and triangulate self-reports with ethically governed usage data. Longitudinal measurement would be preferable for evaluating continuance and the effects of training interventions.

IX. CONCLUSION

The study demonstrates that the effective use of digital-library resources depends not merely on their availability but on how useful, accessible and reliable students perceive them to be. The analytical model indicates that perceived usefulness and service quality are particularly important in shaping user satisfaction, while satisfaction plays the strongest role in sustaining students' intention to continue using digital-library resources. Although e-books and e-journals emerged as the most widely used resources, the comparatively limited use of discovery databases highlights the need for targeted information-literacy programmes, improved search interfaces and greater awareness of specialised scholarly tools. Universities should therefore complement investments in electronic collections with dependable access, responsive user support, practical training and services aligned with students' academic needs. The framework also shows the value of moving beyond descriptive usage statistics towards examining the interrelationships among digital literacy, technology perceptions, service quality, satisfaction and continued use. As the findings are derived from simulated data, they should not be interpreted as empirical evidence about students in Varanasi. Nevertheless, the study provides a theoretically grounded and statistically rigorous framework that can be replicated using actual survey data to guide evidence-based improvements in digital-library services across higher education institutions.

REFERENCES

- [1]. Bhattacharjee, A. (2001). Understanding information systems continuance: An expectation-confirmation model. *MIS Quarterly*, 25(3), 351-370. <https://doi.org/10.2307/3250921>
- [2]. Davis, F. D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS Quarterly*, 13(3), 319-340. <https://doi.org/10.2307/249008>
- [3]. DeLone, W. H., & McLean, E. R. (2003). The DeLone and McLean model of information systems success: A ten-year update. *Journal of Management Information Systems*, 19(4), 9-30. <https://doi.org/10.1080/07421222.2003.11045748>
- [4]. Hong, W., Thong, J. Y. L., Wong, W.-M., & Tam, K.-Y. (2002). Determinants of user acceptance of digital libraries: An empirical examination of individual differences and system characteristics. *Journal of Management Information Systems*, 18(3), 97-124. <https://doi.org/10.1080/07421222.2002.11045692>
- [5]. Joo, S., & Choi, N. (2016). Understanding users' continuance intention to use online library resources based on an extended expectation-confirmation model. *The Electronic Library*, 34(4), 554-571. <https://doi.org/10.1108/EL-02-2015-0033>
- [6]. Lin, Y., Yu, Z., & Zhang, X. (2023). Extending Technology Acceptance Model to higher-education students' use of digital academic reading tools on computers. *International Journal of Educational Technology in Higher Education*, 20, 34. <https://doi.org/10.1186/s41239-023-00403-8>
- [7]. Misra, P., Chopra, G., & Bhaskar, P. (2023). Continuous usage intention for digital library systems among students at higher learning institutions: Moderating role of academic involvement. *Journal of Applied Research in Higher Education*, 15(5), 1752-1766. <https://doi.org/10.1108/JARHE-06-2022-0185>
- [8]. Parasuraman, A., Zeithaml, V. A., & Malhotra, A. (2005). E-S-QUAL: A multiple-item scale for assessing electronic service quality. *Journal of Service Research*, 7(3), 213-233. <https://doi.org/10.1177/1094670504271156>
- [9]. Thong, J. Y. L., Hong, W., & Tam, K. Y. (2002). Understanding user acceptance of digital libraries: What are the roles of interface characteristics, organisational context, and individual differences? *International Journal of Human-Computer Studies*, 57(3), 215-242. [https://doi.org/10.1016/S1071-5819\(02\)91024-4](https://doi.org/10.1016/S1071-5819(02)91024-4)
- [10]. Venkatesh, V., Morris, M. G., Davis, G. B., & Davis, F. D. (2003). User acceptance of information technology: Toward a unified view. *MIS Quarterly*, 27(3), 425-478. <https://doi.org/10.2307/30036540>
- [11]. Walton, E. W. (2014). Why undergraduate students choose to use e-books. *Journal of Librarianship and Information Science*, 46(4), 263-270. <https://doi.org/10.1177/0961000613488124>