Does SERVQUAL Remain A Reliable Approach to Understanding Customer Satisfaction in Indian Digital Banking?

Isha [1] *, Prof. Anil Khurana [2]

[1] *Research Scholar, Department of Management Studies, Deen Bandhu Chhotu Ram University of Science and Technology, Murthal, Sonipat (Haryana)*
[2] *Professor, Department of Management Studies, Deen Bandhu Chhotu Ram University of Science and Technology, Murthal, Sonipat (Haryana)*
*Corresponding author E-mail: 17ishachoudhary@gmail.com

Abstract

The rapid expansion of digital banking in India has prompted renewed evaluation of traditional service quality frameworks. Among these, SERVQUAL (Service Quality), comprising five dimensions—Reliability, Responsiveness, Assurance, Empathy, and Tangibles, has long served as a benchmark for measuring customer satisfaction. However, its suitability for technology-driven environments remains debated. This study critically examines whether SERVQUAL continues to be a reliable and valid framework for assessing customer satisfaction in Indian digital banking. Based on survey data from 330 active e-banking users, the study employs descriptive statistics, correlation analysis, multiple regression, Confirmatory Factor Analysis, and Structural Equation Modelling to validate the model. Results reveal that all five SERVQUAL dimensions significantly influence satisfaction, with Empathy, Assurance, and Reliability emerging as dominant predictors. Tangibles and Responsiveness, though significant, exert comparatively weaker effects. The CFA confirms construct validity, while SEM demonstrates robust path relationships, supporting SERVQUAL's continued relevance in the digital context. Theoretically, this study reinforces SERVQUAL's adaptability to technology-mediated environments, while practically offering insights for Indian banks to prioritise trust-building dimensions over functional aesthetics. Policy recommendations include strengthening digital security standards, promoting customer education initiatives, and encouraging regulatory alignment under the Reserve Bank of India. By validating SERVQUAL in a highly dynamic market, this research establishes the model as an adaptive and enduring tool for evaluating service quality in the era of digital transformation.

Keywords: *SERVQUAL; Digital Banking; Customer Satisfaction; India; SEM; CFA.*

1. Introduction

The accelerated digitisation of the Indian financial sector has fundamentally reshaped how customers interact with banking services. With the emergence of online and mobile banking platforms, customer engagement is no longer confined to physical branches but extends across a network of digital interfaces. According to the Reserve Bank of India (RBI – Reserve Bank of India, 2023), digital transactions in India have grown exponentially due to policy initiatives such as Digital India, Jan Dhan Yojana, and the Unified Payments Interface (UPI – Unified Payments Interface). These developments have made India one of the fastest-growing digital banking markets in the world. However, alongside this unprecedented growth, concerns persist regarding the quality, reliability, and inclusivity of digital banking services. Customers today expect not only seamless and secure transactions but also empathetic and personalised service experiences—attributes traditionally associated with human interaction in physical branches. This shift compels banks to balance technological efficiency with relational quality, raising important questions about whether conventional service quality frameworks, such as SERVQUAL (Service Quality), can adequately capture these evolving expectations. SERVQUAL, developed by Parasuraman, Zeithaml, and Berry (1988), remains one of the most cited and empirically validated models for measuring service quality. It conceptualises quality through five core dimensions—Reliability, Responsiveness, Assurance, Empathy, and Tangibles—which collectively represent both the functional and emotional components of service delivery. The model's strength lies in its multidimensional structure, allowing for nuanced measurement of customer perceptions and expectations across sectors such as hospitality, healthcare, and traditional banking. Yet, in a technology-mediated environment where customers interact primarily through apps, websites, and chat interfaces, the applicability of SERVQUAL has come under scrutiny. Critics argue that its original design for face-to-face service encounters limits its capacity to assess digital touchpoints such as cybersecurity, system uptime, and interface usability (Malc et al., 2023; Sherwani et al., 2024). Conversely, recent studies demonstrate that when contextualised for online settings, SERVQUAL remains a robust predictor of satisfaction and loyalty (Amin, 2016; Kaura, 2025). The Indian digital banking ecosystem presents a unique setting for testing SERVQUAL's continued relevance. It is characterised by high

smartphone penetration, fintech collaborations, and rapid user adoption driven by UPI and mobile payment systems, yet also constrained by challenges such as cybersecurity risks, inconsistent service performance, and uneven digital literacy. These contrasting dynamics make India an ideal context for examining whether SERVQUAL can still capture the determinants of customer satisfaction in a digitised financial environment. This study thus seeks to answer a critical question: Does SERVQUAL remain a reliable and valid framework for understanding customer satisfaction in Indian digital banking, or has the digital transformation rendered it obsolete? To address this question, the research employs a combination of descriptive statistics, correlation analysis, multiple regression, Confirmatory Factor Analysis, and Structural Equation Modelling to evaluate SERVQUAL's dimensions and their predictive power in shaping satisfaction. The study's significance lies in its dual contribution. Theoretically, it revisits a classical model through a modern lens, providing empirical evidence on SERVQUAL's adaptability in a fintech-driven market. Practically, it offers actionable insights for Indian banks and policymakers on how to allocate resources across trust-building, reliability, and empathy dimensions to enhance user experience. The findings aim to bridge the gap between service quality theory and digital banking practice, thereby contributing to both academic discourse and managerial strategy.

2. Literature Review

The study of service quality in banking has evolved significantly since the introduction of the SERVQUAL framework by Parasuraman, Zeithaml, and Berry (1988). Originally designed for traditional service environments, SERVQUAL defines service quality through five key dimensions—Reliability, Responsiveness, Assurance, Empathy, and Tangibles. These dimensions collectively capture both functional and relational aspects of service delivery. Over the past three decades, the model has been applied extensively across industries such as hospitality, healthcare, and conventional banking, earning recognition for its multidimensional and diagnostic capabilities. However, the advent of digital transformation in banking has fundamentally altered service encounters. In digital settings, customer interactions are mediated by technology rather than face-to-face engagement. As a result, factors such as system reliability, cybersecurity, interface design, and personalization have emerged as crucial determinants of service quality. Scholars have questioned whether SERVQUAL, in its original form, adequately represents the nuances of technology-mediated service experiences (Amin, 2016; Malc et al., 2023). Despite these critiques, recent empirical evidence suggests that SERVQUAL remains adaptable and empirically valid when properly modified to include digital-specific variables. Studies across various countries have reaffirmed that SERVQUAL dimensions, particularly Assurance, Empathy, and Reliability, continue to exert strong influence on customer satisfaction in electronic and mobile banking (Ayinaddis et al., 2023; Sherwani et al., 2024). This enduring relevance underscores the model's flexibility and theoretical strength.

2.1. Alternative frameworks in digital service quality

As digital channels have become dominant in service delivery, researchers have developed several alternative models to address SERVQUAL's perceived limitations. The E-S-QUAL model (Parasuraman et al., 2005) extends SERVQUAL to online environments by incorporating dimensions such as system availability, efficiency, fulfilment, and privacy. It provides a more direct measure of technological quality, especially in web-based services. Similarly, SERVPERF (Cronin & Taylor, 1992) simplifies the measurement of service quality by focusing on performance rather than perception gaps, reducing redundancy, and improving predictive accuracy. In addition, frameworks such as E-TailQ (Wolfinbarger & Gilly, 2003) and the Digital Service Quality (DSQ) Model (Palamidovska-Sterjadovska, 2025) have introduced constructs related to interface aesthetics, customization, and perceived ease of use. While these models offer valuable extensions, researchers argue that SERVQUAL's multidimensional structure remains superior in diagnostic capability, provided that its items are adapted to reflect digital realities. According to Malc et al. (2023), SERVQUAL's conceptual foundation—anchored in customer expectations and perceptions—enables its dynamic adjustment to new contexts without losing theoretical integrity. Therefore, instead of being replaced, SERVQUAL can be integrated with emerging digital constructs to form hybrid models of service quality.

2.2. Empirical evidence from recent digital banking studies (2024–2025)

Recent studies demonstrate the continuing applicability of SERVQUAL in digital service settings, especially in emerging markets like India.

- Meenaprabha et al. (2025) revealed that emotional intelligence and empathy significantly enhance e-banking satisfaction among Indian consumers.
- Palamidovska-Sterjadovska (2025) confirmed that assurance and reliability remain critical in mobile banking, particularly for security-conscious users.
- Saxena and Rao (2025) found that perceived trust and responsiveness drive continued use of digital banking platforms in India.
- Tiwari et al. (2024) reported that transparent communication and interface usability significantly improve customer confidence in fintech applications. Rajan and Kumar (2024) observed that data security perceptions moderate the relationship between service quality and satisfaction.
- Iqbal et al. (2025) and Adebayo and Singh (2025) emphasised the moderating effects of digital literacy and cybersecurity on customer satisfaction.
- Malhotra et al. (2025) conducted Confirmatory Factor Analysis of SERVQUAL and validated its five-factor structure within digital banking environments.
- Ayinaddis et al. (2023) and Sherwani et al. (2024) highlighted empathy as the most influential factor driving trust and purchase intention in digital services.
- Zhou and Kim (2025) established that personalization and perceived empathy increase loyalty in Asian digital banking users.

Collectively, these studies affirm that SERVQUAL remains an effective framework for assessing customer satisfaction in digital banking, though its dimensions manifest differently in technology-mediated contexts. Relational attributes such as empathy, assurance, and trust have gained prominence over physical or functional attributes like tangibles and responsiveness.

2.3. Synthesis and research gap

The review of literature reveals a consensus that SERVQUAL's theoretical foundation remains robust and adaptable to digital service environments. However, there is an ongoing need for empirical validation within rapidly evolving contexts such as Indian digital banking, which is characterised by heterogeneous user segments, diverse digital literacy levels, and varying degrees of trust in financial technology. Existing studies often rely on descriptive or regression-based analyses, with relatively fewer incorporating advanced techniques like CFA and SEM to establish SERVQUAL's structural validity in digital contexts. Moreover, limited research has explored SERVQUAL's dimension-specific predictive power on customer satisfaction using large Indian samples that reflect both public and private banking sectors. Consequently, this study fills a significant research gap by rigorously applying advanced statistical modelling to assess the relevance, validity, and reliability of the SERVQUAL framework within the Indian digital banking environment. By integrating traditional service quality theory with the realities of digital transformation, the study aims to contribute both to academic discourse and to practical insights for banking institutions and policymakers.

3. Research Methodology

This study adopted a quantitative, cross-sectional research design to evaluate whether the SERVQUAL (Service Quality) model remains a reliable framework for understanding customer satisfaction in Indian digital banking. The design incorporated both descriptive and inferential analyses to validate the SERVQUAL construct through Confirmatory Factor Analysis and Structural Equation Modelling.

3.1. Data collection and sampling

Primary data were collected through a structured online questionnaire distributed via email, social media, and professional banking forums. The target population comprised active users of digital banking platforms in India, including customers of both public and private sector banks. A total of 330 valid responses were obtained after screening and removing incomplete entries. The study employed convenience sampling due to the challenges associated with reaching a geographically dispersed and demographically diverse population. While this method may limit the generalisability of findings, the sample size exceeds the minimum thresholds recommended for SEM (Hair et al., 2019), ensuring sufficient statistical power. The survey was conducted between February and April 2025. Efforts were made to include respondents from different age groups, educational levels, and regions to enhance diversity. Ethical protocols were followed throughout the study. Respondents were informed about the research objectives, assured of confidentiality, and provided informed consent before participation.

3.2. Questionnaire design and measurement instrument

The questionnaire was divided into two sections. The first captured demographic details, including age, gender, education level, type of bank used, and frequency of digital banking. The second measured the five SERVQUAL dimensions—Reliability, Responsiveness, Assurance, Empathy, and Tangibles—using multi-item scales adapted from Parasuraman et al. (1988) and refined for the digital context based on recent studies (Ayinaddis et al., 2023; Malc et al., 2023; Sherwani et al., 2024). All items were rated on a five-point Likert scale, ranging from 1 (strongly disagree) to 5 (strongly agree). To enhance contextual relevance, each SERVQUAL item was modified to reflect digital banking characteristics such as online interaction, mobile app usability, and cybersecurity. A pilot test with 30 participants was conducted to ensure clarity and reliability before full-scale data collection.

3.3. Adaptation of SERVQUAL items for digital banking

To increase transparency and align with reviewer feedback, Table 1 presents examples of how SERVQUAL items were adapted for digital banking.

Table 1: Adapted SERVQUAL Items for Digital Banking

Dimension	Adapted Item	In-text Citation
Reliability	The bank will provide security and confidentiality for financial transactions.	(Parasuraman et al., 1988)
	Online banking is likely to be subject to hacking that may cause financial loss to consumers.	(Malc et al., 2023)
	The current password, OTP generation, and transaction processes will all always be secure.	(Zhou & Kim, 2025)
	After a few failed login attempts, customers' accounts will be automatically locked out.	(Sherwani et al., 2024)
	The bank will force me to update the login password every three months.	(Ayinaddis et al., 2023)
	I am confident that my banker will also have sufficient security measures in the future.	(Meenaprabha et al., 2025)
	My banker's e-banking website always has enough safeguards, like a firewall and encryption.	(Rajan & Kumar, 2024)
	The bank will regularly update the technology for e-banking.	(Palamidovska-Sterjadovska, 2025)
	After a few failed login attempts, customers' accounts will be automatically locked out.	(Malhotra et al., 2025)
	I am familiar with the potential risks relating to cybersecurity and the resulting damaging consequences.	(Tiwari et al., 2024)
Responsiveness	I can find all the information I need about the bank's products and services on the website.	(Kaura, 2013)
	I can manage my bank transactions 24 hours a day, 365 days a year.	(Saxena & Rao, 2025)
	I can keep track of my bank transactions and review them as and when needed.	(Adebayo & Singh, 2025)
	E-banking will give me convenience and quick access to my bank accounts.	(Amin, 2016)
	I will be able to transfer my funds to anyone at any time.	(Sharma & Bansal, 2025)
Assurance	E-service transactions with the bank will always be accurate.	(Parasuraman et al., 1988)

Empathy	The bank will deliver the e-service on time. Banks will update the information on the web anytime. Mistakes will likely be made during transactions via e-banking. E-banking services will provide compensation for any losses due to security reasons. Only use e-banking if someone will be available to assist me.	(Ayinaddis et al., 2023) (Malc et al., 2023) (Sherwani et al., 2024) (Palamidovska-Sterjadovska, 2025) (Meenaprabha et al., 2025)
Tangibles	The pages will load quickly, the processing speed will be superb, and the website will appear well-organized. My bank's website pages will not freeze or hang after entering all the information. The bank's digital platform should maintain consistent performance across devices. The user-friendly structure and design of instruments will be necessary for accepting e-banking services.	(Tiwari et al., 2024) (Rajan & Kumar, 2024) (Malhotra et al., 2025) (Zhou & Kim, 2025)

Source: Author's compilation.

Table 1 presents the adapted SERVQUAL items contextualised for digital banking. Each item was modified from the original SERVQUAL dimensions (Parasuraman et al., 1988) to reflect technology-driven service interactions, such as online security, interface usability, and real-time responsiveness. References cited for each statement represent prior empirical studies or theoretical sources that informed the item adaptation process. The inclusion of cybersecurity, privacy, and technological assurance elements demonstrates the model's alignment with contemporary digital banking realities. By combining classical service quality principles with digital service constructs, the adapted scale ensures construct validity and contextual relevance within India's evolving e-banking environment.

3.4. Reliability and validity testing

The reliability and validity of all constructs were rigorously assessed. Cronbach's alpha values exceeded the recommended threshold of 0.70 for all dimensions, confirming internal consistency. Convergent validity was established through high factor loadings (all above 0.70, $p < 0.001$), while discriminant validity was confirmed using the Fornell–Larcker criterion. Confirmatory Factor Analysis (CFA) was conducted to test construct validity. The results demonstrated acceptable model fit across key indices:

$\chi^2/df = 2.11$ (< 3.00)

$CFI = 0.948$ (≥ 0.90)

$TLI = 0.935$ (≥ 0.90)

$RMSEA = 0.056$ (≤ 0.08)

$SRMR = 0.041$ (≤ 0.08)

These results confirm that the five-factor SERVQUAL model remains valid in the context of Indian digital banking.

3.5. Analytical procedures

Data analysis proceeded in several stages. Descriptive statistics were first computed to summarise respondent demographics and mean scores across SERVQUAL dimensions. Next, correlation analysis was conducted to explore relationships between service quality dimensions and customer satisfaction. Multiple regression analysis was applied to assess the predictive power of each SERVQUAL dimension on satisfaction. Subsequently, CFA validated the measurement model, and SEM was employed to evaluate the structural relationships between the SERVQUAL constructs and overall customer satisfaction. All analyses were performed using SPSS version 28. SEM was chosen due to its capacity to assess complex causal relationships and provide simultaneous measurement and structural validation within a single model. The study adhered to ethical research standards. Participation was voluntary, and respondents were assured anonymity. No sensitive personal information was collected. Participants were informed that their responses would be used solely for academic purposes, and their consent was obtained before data collection.

4. Results

4.1. Descriptive statistics

Descriptive statistics were used to examine customers' perceptions and satisfaction across the five SERVQUAL dimensions. The perception–satisfaction gap is negligible across all dimensions, with an overall mean difference of –0.44. This suggests that customers' actual experiences with e-banking services largely met their expectations. Table 1 presents the results.

Table 2: Dimension-wise Descriptive Statistics

Dimension	Perception Mean	Satisfaction Mean	Mean Gap (S–P)	Std. Deviation (Perception)	Std. Deviation (Satisfaction)
Reliability	15.89	15.98	-0.09	0.81	0.76
Responsiveness	7.95	7.9	0.04	0.68	0.71
Assurance	28.92	29.19	-0.28	1.02	0.95
Empathy	23.63	23.73	-0.12	0.84	0.79
Tangibles	16.2	16.19	0.01	0.77	0.75
Overall	92.59	93.03	-0.44	—	—

Assurance recorded the highest satisfaction mean (29.19), reflecting the importance of security and confidentiality in digital transactions. Empathy and Reliability also performed strongly, suggesting that personalisation and consistency are valued by customers. Tangibles and

responsiveness exhibited minimal gaps, highlighting that interface design and speed are adequate but less critical compared to relational and security-based factors.

4.2. Correlation analysis

To explore linear relationships between SERVQUAL dimensions and overall customer satisfaction, Pearson's correlation coefficients were calculated in Table 2. All SERVQUAL dimensions were positively and significantly correlated with overall satisfaction. Empathy demonstrated the strongest correlation (r = 0.791), followed by Assurance (r = 0.768) and Reliability (r = 0.742).

Table 3: Correlation Matrix (Dimensions vs Overall Satisfaction)

Dimension	Reliability	Responsiveness	Assurance	Empathy	Tangibles	Overall Satisfaction
Reliability	1	0.612	0.654	0.701	0.588	0.742
Responsiveness	0.612	1	0.633	0.597	0.544	0.681
Assurance	0.654	0.633	1	0.715	0.626	0.768
Empathy	0.701	0.597	0.715	1	0.672	0.791
Tangibles	0.588	0.544	0.626	0.672	1	0.703
Overall Satisfaction	0.742	0.681	0.768	0.791	0.703	

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

Relational and trust-based factors heavily influence customer satisfaction in digital banking. Tangibles (r = 0.703) and responsiveness (r = 0.681) also showed significant but relatively weaker correlations, suggesting that interface quality and responsiveness matter but are secondary to trust and personalisation.

4.3. Regression analysis

A multiple regression analysis was conducted to assess the predictive power of the SERVQUAL dimensions on overall customer satisfaction. The model in Table 3 explained 79.6% of the variance in customer satisfaction (R^2 = 0.796), indicating strong predictive validity for SERVQUAL dimensions.

Table 4: Regression Model Summary

Model	R	R^2	Adjusted R^2	Std. Error of the Estimate
1	0.892	0.796	0.791	0.412

Table 5: Regression Coefficients

Predictor	Standardized Beta (β)	t-value	Sig.
Reliability	0.226	6.51	0.000
Responsiveness	0.102	2.87	0.004
Assurance	0.243	7.51	0.000
Empathy	0.284	8.79	0.000
Tangibles	0.162	4.71	0.000

All five SERVQUAL dimensions significantly predicted customer satisfaction (p < 0.05) in Table 4. Empathy emerged as the strongest predictor (β = 0.284), followed by Assurance (β = 0.243) and Reliability (β = 0.226). Tangibles (β = 0.162) and responsiveness (β = 0.102), though significant, exerted comparatively weaker effects. This reinforces the finding that relational attributes and trust outweigh functional attributes in driving satisfaction.

4.4. Confirmatory factor analysis (CFA)

CFA was conducted to validate the SERVQUAL measurement model. Table 5 presents the model fit indices.

Table 6: CFA Model Fit Indices

Fit Index	Recommended Threshold	Obtained Value	Model Fit Status
χ^2/df (Chi-square/df)	< 3.00	2.11	Good Fit
CFI (Comparative Fit Index)	≥ 0.90	0.948	Acceptable
TLI (Tucker–Lewis Index)	≥ 0.90	0.935	Acceptable
RMSEA (Root Mean Square Error of Approximation)	≤ 0.08	0.056	Good Fit
SRMR (Standardized Root Mean Square Residual)	≤ 0.08	0.041	Good Fit

The CFA confirmed that the five-factor SERVQUAL structure is valid in the Indian digital banking context. All standardised factor loads exceeded 0.70 (p < 0.001), indicating strong convergent validity. Discriminant validity was also established, demonstrating that each SERVQUAL dimension is distinct yet related to overall satisfaction.

4.5. Structural equation modelling (SEM)

SEM was applied to assess the structural relationships between SERVQUAL dimensions and customer satisfaction.

Table 7: SEM Path Coefficients

Predictor	Standardized β	t-value	Sig.	Conclusion
Reliability	0.221	6.48	0	Significant
Responsiveness	0.106	2.81	0.005	Significant
Assurance	0.247	7.39	0	Significant
Empathy	0.292	8.54	0	Significant
Tangibles	0.158	4.63	0	Significant

The SEM results confirm the regression findings. Empathy ($\beta = 0.292$) is the most influential driver of satisfaction, followed by Assurance ($\beta = 0.247$) and Reliability ($\beta = 0.221$). Tangibles and responsiveness remain significant but comparatively weaker contributors. These results highlight that digital banking customers prioritise empathy, security, and reliability over interface aesthetics or quick responses.

5. Discussion and Policy Implications

The results of this study reaffirm that the SERVQUAL framework remains a reliable and relevant model for evaluating service quality and customer satisfaction in the Indian digital banking context. The empirical evidence from CFA and SEM analyses supports the structural validity of the five SERVQUAL dimensions, Reliability, Responsiveness, Assurance, Empathy, and Tangibles, while revealing that the relative significance of these factors has shifted in the digital era.

5.1. Theoretical discussion

The findings highlight that Empathy, Assurance, and Reliability are the strongest predictors of customer satisfaction, confirming that digital service quality extends beyond technological performance to include psychological and trust-based components. This aligns with prior research (Ayinaddis et al., 2023; Meenaprabha et al., 2025; Malhotra et al., 2025), which emphasises that emotional connection and trustworthiness drive long-term user satisfaction in online financial environments. Unlike traditional banking, digital interactions are asynchronous and impersonal, which can amplify customer concerns regarding data security and personal attention. As a result, empathy manifested through proactive communication, personalised messaging, and 24/7 support has emerged as the most influential determinant of satisfaction. The relative decline in the importance of Tangibles suggests that digital banking users no longer associate satisfaction with visual or aesthetic appeal alone. Instead, they prioritise the functional and relational quality of the interface, including speed, security, and accuracy. These findings reinforce the adaptability of SERVQUAL, provided that its items are modified to reflect digital-specific constructs such as system integrity and cybersecurity assurance.

5.2. Managerial implications

From a managerial perspective, the study provides several actionable insights for banks operating in India's digital ecosystem: Prioritise Customer Trust and Assurance: Banks must continuously enhance cybersecurity frameworks, authentication processes, and encryption mechanisms to sustain customer confidence. Transparent communication regarding security measures such as multi-factor authentication and regular password updates can significantly improve perceived assurance. Develop Empathy through Digital Personalisation: Artificial intelligence and data analytics can be leveraged to provide personalised recommendations, proactive alerts, and emotional engagement through digital channels. Empathetic communication (e.g., notifying customers about suspicious transactions or offering help during service downtime) fosters relational loyalty. Strengthen Service Reliability: Consistent performance, system uptime, and minimal transaction errors are crucial. Regular technology upgrades, load balancing, and automatic recovery systems can prevent disruptions and maintain reliability, thereby increasing overall satisfaction. Enhance Responsiveness through 24/7 Support:
Banks should integrate real-time chatbots and hybrid human–AI service models to offer immediate assistance. Ensuring timely problem resolution through omnichannel integration (mobile, web, and social platforms) will strengthen responsiveness. Invest in Digital Inclusion Initiatives: Considering India's digital divide, banks should invest in user education programs, especially for senior citizens and rural customers, to improve digital literacy and trust in e-banking platforms.

5.3. Policy implications

The study's results carry significant implications for policy formulation and regulatory practice within the Indian financial system.
RBI-led Cybersecurity Frameworks:
The Reserve Bank of India (RBI) should further enforce its Cyber Security Framework for Banks (2024 revision), mandating strict compliance audits and risk management standards for digital banking.
Data Protection and Consumer Awareness:
Regulatory agencies such as the Data Protection Board of India should coordinate with financial institutions to ensure clear disclosure of data usage policies and grievance redressal mechanisms. This transparency will enhance perceived assurance and accountability in digital financial ecosystems.
Promotion of Fintech-Bank Collaboration:
Policy measures should encourage partnerships between traditional banks and fintech startups for technology-sharing and innovation in secure payment infrastructure. These collaborations can help balance innovation with regulatory oversight.
Financial Inclusion through Digital Empowerment:
To align with national programs such as Digital India and Jan Dhan 2.0, policymakers must incentivise banks to offer vernacular-language interfaces, biometric authentication options, and mobile-based tutorials that bridge the literacy gap.

5.4. Contribution to literature

The present study makes several theoretical and practical contributions to the existing body of knowledge on service quality and customer satisfaction in the digital banking context. First, it revalidates the SERVQUAL framework in an emerging-market digital ecosystem. By empirically confirming its structural validity through CFA and SEM, the study demonstrates that the classical five-dimension model retains conceptual strength even when service delivery is fully technology-mediated. This addresses a long-standing academic debate regarding whether SERVQUAL can remain relevant in non-physical, self-service contexts such as online or mobile banking (Parasuraman et al., 1988; Amin, 2016). Second, the study contributes a context-specific adaptation of SERVQUAL for Indian digital banking, integrating new constructs such as cybersecurity reliability, data privacy assurance, and digital empathy. The item-adaptation process (see Table 1) enriches the theoretical framework by merging traditional service-quality theory with emerging digital-service attributes. This hybridisation advances measurement literature by providing an operational tool that can be replicated or extended in other developing economies with similar digital-adoption profiles. Third, the study enhances the understanding of dimension-specific importance within digital service quality. The empirical results reveal a shift from tangible to relational and security-based dimensions of empathy, assurance, and reliability,

highlighting that psychological safety and perceived trust are more crucial than interface aesthetics in online financial services. This adds a nuanced perspective to existing SERVQUAL research, suggesting that emotional and assurance-based dimensions deserve stronger theoretical weighting in digital contexts. Fourth, the research contributes methodologically by combining Confirmatory Factor Analysis (CFA) and Structural Equation Modelling (SEM) within a single analytical framework. This dual validation approach strengthens construct reliability and offers a robust template for future quantitative studies in service-quality measurement. Finally, the study provides policy-oriented insights that link academic findings with India's ongoing financial-digitisation initiatives. By identifying empirical priorities, trust, empathy, and reliability, the paper directly informs banks, regulators, and fintech developers seeking to align service-quality improvement with national programs such as Digital India and Jan Dhan 2.0. Overall, the research establishes SERVQUAL as an adaptive, empirically validated, and policy-relevant model for evaluating digital banking quality in developing economies, thereby extending both theoretical and applied frontiers of service-quality literature.

5.5. Limitations and future research

While this study provides meaningful insights into the applicability of SERVQUAL in Indian digital banking, it is important to interpret the findings within certain contextual boundaries. The use of convenience sampling enabled quick access to a wide base of digital banking users, yet it may limit the representativeness of the results across different socio-economic and geographic segments. However, the diverse sample composition and adequate size (N = 330) help maintain statistical validity and provide a reasonable snapshot of customer perceptions in India's growing e-banking ecosystem. Another consideration is that the research primarily focuses on traditional banks with digital service extensions, excluding fintech-only or neo-banking institutions. This focus was deliberate to maintain homogeneity in the service context, but future research could expand comparisons across banking models to test the generalisability of SERVQUAL in hybrid or fully digital environments. Furthermore, the study's cross-sectional design provides valuable insights at a specific time point but cannot fully capture how satisfaction and service expectations evolve. Future studies employing longitudinal or mixed-method approaches could yield richer insights into customer experiences as technologies mature. Finally, the model evaluated the five classical SERVQUAL dimensions, which, although robust, may not entirely reflect the technological complexity of contemporary digital banking. Future research could integrate constructs such as perceived ease of use, system reliability, digital empathy, and data security perception to develop an enhanced "Digital SERVQUAL" framework suited for next-generation financial ecosystems. Overall, these limitations do not detract from the study's contributions but rather open pathways for extending and refining the model in future investigations.

5.6. Conclusion

This study set out to examine whether the SERVQUAL framework remains a reliable and valid approach for understanding customer satisfaction in India's digital banking landscape. The findings confirm that SERVQUAL continues to provide a robust measurement structure when contextualised for technology-driven environments. Among its dimensions, Empathy, Assurance, and Reliability were found to be the strongest predictors of satisfaction, highlighting that digital banking customers value trust, security, and personalised interaction as much as convenience and efficiency. The research reinforces that while digitalisation has transformed service delivery, the fundamental principles of service quality, accuracy, responsiveness, and care remain equally relevant. The adaptation of SERVQUAL to include elements of cybersecurity, transparency, and digital empathy demonstrates its flexibility and enduring theoretical strength. Although the study was limited to a specific context, its findings contribute meaningfully to both academic discourse and managerial practice. Future research may broaden the scope by comparing traditional banks with fintech and neo-banking institutions to further refine the applicability of SERVQUAL in diverse, technology-intensive financial ecosystems.

References

[1] Adebayo, O., & Singh, R. (2025). Digital literacy and satisfaction in fintech adoption. *International Journal of Emerging Markets.*
[2] Amin, M. (2016). Impact of internet banking service quality on e-customer satisfaction and loyalty. *International Journal of Bank Marketing, 34*(3), 280–306. https://doi.org/10.1108/IJBM-10-2014-0139.
[3] Ayinaddis, S. G., Taye, B. A., & Yirsaw, B. G. (2023). Examining the effect of electronic banking service quality on customer satisfaction and loyalty. *Journal of Innovation and Entrepreneurship, 12*(1), 22. https://doi.org/10.1186/s13731-023-00287-y.
[4] Cronin, J. J., & Taylor, S. A. (1992). Measuring service quality: A reexamination and extension. *Journal of Marketing, 56*(3), 55–68. https://doi.org/10.1177/002224299205600304.
[5] Hair, J. F., Hult, G. T. M., Ringle, C., & Sarstedt, M. (2019). *A primer on partial least squares structural equation modeling (PLS-SEM)* (2nd ed.). Sage. https://doi.org/10.3926/oss.37.
[6] Kaura, V. (2013). Antecedents of customer satisfaction: A study of Indian public and private sector banks. *International Journal of Bank Marketing, 31*(3), 167–186. https://doi.org/10.1108/02652321311315285.
[7] Malc, D., Skokic, V., & Pivac, S. (2023). The development of e-banking services quality. *Sustainability, 15*(16), 12659. https://doi.org/10.3390/su151612659.
[8] Malhotra, P., Kaur, S., & Sharma, N. (2025). Validating SERVQUAL through CFA in digital banking. *Journal of Financial Services Research, 48*(2), 122–139.
[9] Meenaprabha, P., Saravanan, A., & Suresh, S. (2025). Emotional intelligence and its impact on service performance and customer satisfaction. *Future Business Journal, 11*(1), 48. https://doi.org/10.1186/s43093-025-00548-0.
[10] Palamidovska-Sterjadovska, N. (2025). Service quality in mobile banking. *International Journal of Bank Marketing, 43*(6), 1195–1212. https://doi.org/10.1108/IJBM-02-2024-0105.
[11] Parasuraman, A., Zeithaml, V. A., & Berry, L. L. (1988). SERVQUAL: A multiple-item scale for measuring consumer perceptions of service quality. *Journal of Retailing, 64*(1), 12–40.
[12] 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.
[13] Rajan, R., & Kumar, P. (2024). Perceived security and data privacy in digital banking: An Indian perspective. *Asian Journal of Business Research, 14*(1), 58–73.
[14] Saxena, A., & Rao, M. (2025). Determinants of continued use of digital banking services in India. *Journal of Financial Innovation, 9*(2), 77–95.
[15] Sharma, K., & Bansal, N. (2025). Understanding consumer behavior in e-banking: A study on service convenience. *South Asian Journal of Business Studies, 14*(2), 203–219.
[16] Sherwani, H., Ali, R. A., Azhar, M., & Mariam, S. (2024). Impact of e-banking service quality on purchase intention with mediating role of customer satisfaction. *Journal of Excellence in Social Sciences, 3*(2), 170–182. https://doi.org/10.69565/jems.v3i2.217.
[17] Tiwari, R., Gupta, V., & Singh, R. (2024). Cybersecurity awareness and digital trust in banking consumers. *Journal of Retailing and Consumer Services, 78*, 103495.
[18] Zhou, T., & Kim, J. (2025). Perceived empathy and personalization in digital banking: Implications for customer loyalty. *Asia Pacific Journal of Marketing and Logistics, 37*(1), 95–112.