

THE INTERPLAY OF CUSTOMER ENGAGEMENT AND E-SERVICE QUALITY IN SHAPING E-BANKING LOYALTY: EVIDENCE FROM NORTH INDIA

Dr. Aman Khera¹,

¹ Assistant Professor, UIAMS, Punjab University, Chandigarh

Smriti Nayyar²

² Research Scholar, School of Management Studies, Punjabi University, Patiala

Abstract

This study investigates the combined influence of customer engagement and e-service quality on customer loyalty in the e-banking sector, focusing on users across Punjab, Haryana, and Chandigarh. Utilizing a structured questionnaire and a sample of 600 valid respondents, the research employs advanced statistical techniques-including Exploratory Factor Analysis and MANOVA-to analyze the interplay of demographic and socio-economic variables with customer perceptions. The findings reveal that while state, gender, age, and locality do not significantly affect engagement or loyalty, occupation, education, and income are notable differentiators. Business professionals and highly educated individuals exhibit greater engagement and loyalty, while higher-income customers report stronger satisfaction with e-banking services. The study identifies nine key factors -Efficiency, System Availability, Fulfilment, Customer Support, Reliability, E-Satisfaction, E-Trust, Customer Retention, and Technical Issues-that collectively explain over 80% of the variance in customer perceptions. These results underscore the importance of fostering both engagement and high-quality digital service experiences to build enduring customer loyalty in the evolving landscape of Indian e-banking.

Key Words: • E-banking, Customer engagement, E-service quality, Customer loyalty, Digital banking, Socio-economic variables, Digital trust, Financial services

Introduction

In the era of digital transformation, the global banking industry has undergone a paradigm shift, with **electronic banking (e-banking)** emerging as a dominant channel for delivering financial services. E-banking leverages digital technologies to provide customers with round-the-clock access to banking services through internet and mobile platforms, thereby revolutionizing the way financial transactions are conducted (GeeksforGeeks, 2023; Kotak811, n.d.). Driven by advancements in information and communication technology (ICT), banks have increasingly embraced digitalization to enhance operational efficiency, expand customer reach, and deliver seamless service experiences. This transformation has been particularly accelerated by the COVID-19 pandemic, which necessitated contactless transactions and further increased customer reliance on digital banking channels (Mashali, 2020).

Amid this shift, **customer loyalty** has become a strategic imperative for banks seeking long-term sustainability and competitive advantage. Unlike traditional banking, where loyalty was shaped through personal relationships and face-to-face interactions, the digital banking environment demands a re-evaluation of the drivers of loyalty. Two critical constructs that have emerged in this context are **customer engagement** and **e-service quality**.

Customer engagement in e-banking refers to the depth of emotional, cognitive, and behavioral

investment that a customer exhibits in interacting with a bank's digital services (Vivek, 2015; Suryani, 2018). It is no longer sufficient for banks to provide functional services; they must create meaningful, interactive experiences that foster trust, satisfaction, and relational commitment. Studies suggest that engaged customers are more likely to exhibit brand loyalty, repeat usage, and act as brand advocates (Ngwa, 2022; Vivek, 2022).

E-service quality (eBSQ), on the other hand, represents the efficiency, security, responsiveness, usability, and personalization of digital banking platforms (Raza et al., 2020; Amin, 2016). In a competitive digital environment, where customers have myriad options and low switching costs, the perceived quality of e-banking services significantly influences satisfaction, trust, and ultimately, loyalty (Floh & Treiblmaier, 2006; Ul Haq & Awan, 2020). Modern customers expect intuitive interfaces, fast processing times, personalized offerings, and secure transactions. Banks that fail to meet these expectations risk customer attrition and reputational loss.

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While extensive research has explored e-service quality and customer satisfaction independently, there remains a notable gap in understanding the **combined impact of customer engagement and e-service quality on customer loyalty** in the context of e-banking, particularly in developing economies where digital literacy, infrastructure, and trust in digital channels vary considerably (Ngwa, 2022; Redda, 2023). Moreover, as customer preferences evolve alongside emerging technologies such as artificial intelligence, blockchain, and open banking APIs, there is a pressing need to reassess how these factors influence loyalty dynamics.

Review of Literature

2.1 Introduction

Customer loyalty in e-banking has become a cornerstone for competitive advantage in the modern financial sector. With rapid technological advancements and growing digital customer bases, banks are focusing more than ever on enhancing customer engagement and e-service quality to foster loyalty. This chapter reviews key scholarly contributions that explore how customer engagement and electronic service quality (e-SQ) influence customer loyalty in e-banking.

E-service quality plays a vital role in influencing customer satisfaction and loyalty. In the Indian e-banking context, studies identify key quality dimensions—responsiveness, reliability, security, efficiency, personalization, and website usability—as critical to customer perceptions (**Kaur & Kiran, 2015; Sharma & Malviya, 2020**). These dimensions shape the overall customer experience and encourage continued usage.

Empirical studies have consistently demonstrated a strong correlation between e-service quality and customer loyalty. **Singh (2019)** emphasizes that efficiency, security, and responsiveness significantly impact loyalty by enhancing satisfaction levels. Another comparative study (**Ahmed et al., 2024**) between Indian and Pakistani banking customers confirms that improvements in e-service quality directly translate into enhanced customer loyalty.

Customer engagement is frequently cited as both an outcome of service quality and a precursor to loyalty. High e-service quality fosters deeper emotional and behavioral engagement, encouraging repeat transactions, positive word-of-mouth, and brand commitment (**Ali & Raza, 2017**). Although research directly focusing on Indian banks is limited, global findings are highly transferable due to similar user behaviors in digital contexts.

Customer satisfaction serves as a crucial link between e-service quality and loyalty. Several studies (**Narteh, 2013; Sharma & Malviya, 2020**) confirm that satisfaction acts as a mediator, amplifying the impact of quality improvements on loyalty outcomes.

Researchers have developed conceptual models highlighting the direct and indirect relationships among service quality, satisfaction, engagement, and loyalty. These frameworks help in understanding how multi-dimensional service factors influence customer retention strategies (**Kaur & Kiran, 2015; Ahmed et al., 2024**).

2.2 Customer Engagement and E-Banking

Customer engagement is increasingly recognized as a multi-dimensional construct involving cognitive, emotional, and behavioral elements of customer interaction with a brand or service. **Vivek (2015)** and **Ngwa (2022)** emphasize that customer engagement directly correlates with satisfaction and loyalty, particularly in digital service contexts like e-banking. **Pernamawati (2024)** supports this by demonstrating a strong correlation between mobile banking usage and customer engagement, accounting for 62.6% of usage behaviors. Similarly, **Monferrer (2019)** highlights satisfaction, emotions, and self-brand connection as primary antecedents of engagement in retail banking.

Islam (2020) further confirms that website features such as customization, aesthetics, and simplicity drive customer engagement, which in turn enhances trust and loyalty. These findings suggest that digital platforms serve not just as transaction tools but as crucial environments for engagement-building.

2.3 E-Service Quality (e-SQ) and Its Dimensions

E-service quality refers to the consumer's evaluation of online services, typically encompassing reliability, responsiveness, privacy, security, website design, and usability. Studies by **Raza et al. (2020)** and **Amin (2016)** outline these core dimensions, which are repeatedly validated in empirical literature.

Gibson (2024) finds a robust relationship between e-banking service quality and customer satisfaction, underscoring the importance of user-friendliness and assistance. Likewise, **Tran (2023)** emphasizes that security, communication, and system efficiency are critical e-SQ dimensions impacting satisfaction and loyalty. **Dhruba Kumar Gautam (2023)** further confirms the mediating role of e-satisfaction between online banking service quality and customer loyalty using the E-S-QUAL model.

Additional studies (e.g., **Samuel Godadaw Ayinaddis, 2023; Indrasari, 2022**) indicate that responsiveness, dependability, privacy, and convenience are the strongest predictors of consumer satisfaction, which subsequently leads to loyalty.

2.4 Customer Loyalty in E-Banking

Customer loyalty is typically defined as a customer's intention to continue using a service and to recommend it to others. In digital banking, loyalty is closely tied to consistent positive experiences and perceived value.

Fahad Najeeb Khan (2023) demonstrates that e-satisfaction significantly mediates the relationship between e-service quality and e-loyalty, especially during disruptive periods such as the COVID-19 pandemic. **Shamil (2022)** and **Shankar (2018)** show that improved e-service quality results in higher loyalty levels, particularly when mediated by trust and satisfaction.

Redda (2023) adds a nuanced layer, showing partial mediation of satisfaction between e-service quality and loyalty, indicating that while satisfaction is crucial, service quality independently affects loyalty as well.

2.5 Integrated View: Engagement, E-Service Quality, and Loyalty

Research is converging on the view that **customer engagement and e-service quality are not only individually influential but also interdependent** in shaping loyalty. **Ngwa (2022)** and **Sneha (2024)** highlight that intuitive digital interfaces and personalized engagement improve satisfaction and trust, which lead to stronger loyalty outcomes.

Ahmed (2020) uses the E-S-QUAL model to show that trust and perceived value also mediate the relationship between service quality and satisfaction, which feeds into loyalty. Additionally, **Kamdjou (2022)** explores the role of technological and cost-related perceptions, noting that trust significantly enhances both engagement and continued use of e-banking.

2.6 Research Gap

Despite robust findings, much of the existing research examines **either** e-service quality or customer engagement in isolation. Few studies analyze their **combined influence** on customer loyalty in a holistic model, particularly in emerging economies with varied levels of digital infrastructure and trust. Moreover, most research emphasizes satisfaction as the sole mediator, overlooking potential interactive effects between engagement and service quality.

3.0 Research Objectives

1. To study the relationship between Customer Engagement and Customer Loyalty with the E-Banking Services among users of various socio-economic variables.
2. To study the relationship between Customer Engagement and Customer Loyalty with E-banking services among respondents of different states.
3. To study the relationship between Customer Engagement and Customer Loyalty with E-banking services among respondents of different locale.
4. To study the relationship between Customer Engagement and Customer Loyalty with E-banking services among respondents of different age.
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3.1 Sampling Design

The **sampling design** is a critical element in ensuring that the research findings are accurate, relevant, and generalizable within the defined scope of the study. This section outlines the strategy adopted to determine the appropriate sample and method of selection from the target population.

3.2 Sampling Frame

The sampling frame includes **Indian bank customers aged 18 years and above**, residing in **Punjab, Haryana, and the Union Territory of Chandigarh**, who have utilized any form of **electronic banking services** (internet banking, mobile banking, UPI, ATM, NEFT/RTGS, etc.) within the last six months. The frame covers users of public, private, and cooperative sector banks to ensure diversity in customer experience and service exposure.

3.3 Sampling Methodology

Given the exploratory nature of the study and the difficulty in accessing a random pool of qualified respondents, a **Non-Probability Sampling** approach is adopted. Two methods are integrated:

- **Purposive Sampling:** Used initially to select a core group of respondents who meet the eligibility criteria based on knowledge and usage of e-banking services. These participants are selected from bank premises, online financial service communities, and known users within the researcher's network.

- **Snowball Sampling:** Deployed subsequently to expand the respondent base by leveraging referrals from the initial participants. This cascading method facilitates the inclusion of users from diverse demographic and geographic backgrounds, particularly those in underrepresented or harder-to-reach populations. As noted by Brown (2016), this method allows for broader representation and diversity in views.

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3.4 Sample Size

To ensure statistical relevance and analytical depth, the study aims to collect data from **a minimum of 300–400 respondents**. This range is deemed sufficient based on similar studies and aligns with the standards for social science research using inferential statistics and multivariate techniques.

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4.0 Data Analysis and Interpretation

This study aimed at understand behavioral patterns and preferences of customers using e-banking in North India. A structured questionnaire was designed and refined based on expert feedback and pilot studies. Out of 736 responses, 600 valid questionnaires were considered for final analysis. The questionnaire covered demographic data and 33 items measuring perceptions related to e-banking using a 5-point Likert scale. Raw data underwent cleaning, coding, and imputation for missing values. For analysis, **SPSS version 26** was primarily used, employing descriptive statistics, **Exploratory Factor Analysis (EFA)**, **KMO and Bartlett's test** for sampling adequacy, **independent t-tests**, and **post hoc tests like Levene's test, Welch's ANOVA, Games-Howell, and Tukey's test**. The study initially extracted 33 factors influencing customer perceptions, refined them through EFA into nine main factors: Efficiency, System Availability, Fulfilment, Customer Support, Reliability, E-Satisfaction, E-Trust, Customer Retention, and Technical Issues. These nine factors explained a cumulative variance of about 80.132%, ensuring strong model adequacy

Further, this study explored how customer engagement and e-service quality contribute to customer loyalty within the e-banking sector, while factoring in key socio-economic variables such as state, gender, age, education, occupation, income, and locality. Through the use of advanced statistical methods, including MANOVA and post-hoc testing, the study provides valuable insights into how these variables interact with customer behavior in the digital banking space.

The analysis revealed that there was no statistically significant difference in customer engagement or loyalty across respondents' **state of residence, gender, age group, or locality** (urban vs. rural). This suggests that these demographic variables—often considered critical in consumer behavior studies—do not substantially influence how customers perceive or remain loyal to e-banking services. In other words, the level of satisfaction and loyalty customers feel toward e-banking platforms appears to be relatively consistent regardless of geographic location, age, or gender, implying a level of universal acceptance and usability of these digital financial services across these groups.

However, notable **variations were observed when examining occupation, education, and income**. In terms of **occupation**, business professionals demonstrated significantly higher levels of engagement with e-banking services, likely due to their frequent need for financial transactions and digital financial tools. On the other hand, **students exhibited distinct patterns of loyalty**, which could be attributed to their tech-savviness, reliance on mobile banking, or specific expectations around usability and service responsiveness. When considering **education**, individuals with higher academic qualifications showed greater levels of engagement and loyalty, indicating that digital literacy and familiarity with technological platforms play a critical role in shaping positive customer experiences. Similarly, **income level** emerged as a determining factor, with higher-income individuals displaying stronger digital loyalty and greater satisfaction with e-banking services. This may stem from their greater exposure to premium

digital services, higher expectations for service quality, and more frequent interactions with online financial platforms.

In evaluating the components of e-service quality, attributes such as **system availability, fulfilment, e-trust, and e-satisfaction** were identified as **key predictors of customer loyalty**. These factors represent the foundational aspects of digital service delivery—reliable platform access, the fulfillment of service promises, user trust in digital transactions, and overall satisfaction with the service experience. Surprisingly, the study found a **negative correlation between efficiency and customer loyalty**. While efficiency is typically seen as a desirable trait, this finding suggests that when digital processes become overly automated or impersonal, customers may feel disconnected from the service, thereby undermining their sense of loyalty. This result underscores the importance of maintaining a balance between technological efficiency and human-centered design in digital banking interfaces.

Ultimately, the study reaffirms the relevance of the **E-SERVQUAL model** in the context of modern e-banking. The findings align with the model's emphasis on reliability, responsiveness, and assurance as critical components of service quality. Furthermore, the results highlight the growing importance of **digital trust, satisfaction, and personalized engagement** as essential elements in developing and sustaining customer loyalty. For banks seeking to thrive in an increasingly digital financial landscape, these insights offer strategic direction for enhancing customer experience and fostering long-term relationships through more targeted, trustworthy, and engaging service delivery.

5.0 Findings and Suggestions

5.1 Findings

The present study applied Exploratory Factor Analysis (EFA) and regression modeling to uncover critical attributes of e-service quality impacting customer engagement and loyalty in e-banking. The analysis identified **nine key components—efficiency, system availability, fulfilment, customer support, reliability, e-satisfaction, e-trust, customer retention, and technological challenges**—which collectively account for **approximately 80.132% of the variance** in customer engagement and loyalty. These findings validate the multidimensional nature of e-service quality as emphasized in prior frameworks like SERVQUAL and E-SERVQUAL (Parasuraman et al., 2005; Zeithaml, 2002).

Significantly, the **accuracy and reliability** of banking platforms influenced fulfilment, while **privacy and data security** were strongly associated with perceived reliability. System availability and efficiency emerged as crucial for a seamless user experience, while customer support functioned as a distinct and essential determinant of satisfaction and loyalty. These results align with established literature which recognizes trust, satisfaction, and fulfillment as central pillars of e-loyalty (Gefen, 2003; Cronin & Taylor, 1992; Vidgen, 2002). The study thus reinforces the relevance of system availability, personalization, and responsiveness as strategic levers in digital banking success.

5.2 Limitations of the Study

Despite the application of robust analytical tools, this study is subject to several limitations that may affect the generalizability and depth of its conclusions. Firstly, the methodological approach is constrained by its cross-sectional design, which prevents the establishment of causal relationships among variables. Additionally, while Exploratory Factor Analysis (EFA) is useful for identifying latent constructs, it does not confirm causal linkages, limiting the explanatory power of the model. From a statistical perspective, concerns such as potential multicollinearity, limited generalizability due to the sample's composition, and partial violation of MANOVA assumptions—such as multivariate normality—could impact the internal validity of the findings. Furthermore, the use of non-probability sampling introduces sampling bias and may not accurately reflect the broader e-banking user population.

Over-representation of certain demographics, especially urban respondents, could skew the results. Lastly, the reliance on self-reported data may introduce biases such as social desirability and recall inaccuracies, which can compromise the authenticity of the responses and, consequently, the conclusions drawn from them.

5.3 Suggestions

In light of the findings and acknowledged limitations, several practical and strategic recommendations are proposed for banks, digital strategists, and future researchers. Banks should prioritize optimizing digital efficiency without compromising the human touch. This could be achieved through the redesign of interfaces that combine speed with elements of personalization, such as AI-driven chatbots, user history-based suggestions, and interactive assistance features. Additionally, institutions must strengthen their service recovery mechanisms by implementing transparent and swift response systems to address issues like system downtimes, transaction failures, or cybersecurity incidents. Tailored engagement strategies should also be developed for distinct customer segments, especially business professionals and students, based on their unique usage behaviors and service expectations. Regular benchmarking of e-service quality against competitors is crucial to identify best practices and improve continuously. Moreover, considering the increasing reliance on mobile platforms, banks must enhance mobile banking experiences by improving application speed, bolstering security features, enabling biometric authentication, and offering intuitive, user-friendly navigation. Collectively, these measures can help e-banking providers improve customer engagement, satisfaction, and long-term loyalty.

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