

# Customer Satisfaction Influencers: An Empirical Investigation of Online Banking Services

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## ABSTRACT

The present study aims to examine the factors influencing customer satisfaction in online banking services, focusing on services quality, customer experience, technological advancements, customer adoption, and online trust. Data was collected from 728 respondents through a self-administered questionnaire and analyzed using SPSS and AMOS software. Structural equation modeling (SEM) was employed to examine the variables and assess the fitness of the proposed model. This research also investigated the mediating role of various factors in customer satisfaction. Similarly, Customer experience has direct impact on customer satisfaction and an indirect impact through customer adoption. Technological advancements directly influence customer satisfaction and indirectly through online trust. The results suggest that customer perception, customer adoption, and online trust are pertinent to the development of customer satisfaction in online banking services.

## KEYWORDS

Customer satisfaction, Online Banking Services, Service Quality, Customer Experience, Technological Advancements, Customer Adoption and Online Trust.

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## INTRODUCTION

The rapid evolution of technology has significantly transformed how businesses engage with consumers; a trend further accelerated by the COVID-19 pandemic. In the banking sector, advancements in information technology have led to the computerization of transactions and operations (Omotayo, 2020), enhancing financial services (Raza et al., 2020). Online banking characterizes this transformation, enabling customers to perform diverse transactions such as checking balances, transferring funds,

bill payments, and even purchasing goods and services (Chou & Chou, 2000).

Intense competition among banks highlights the importance of delivering high-quality online banking services to attract and retain customers (Kandampully et al., 2015; Makanyeza and Chikazhe, 2017). Online banking has become a major part of the global financial system, and its adoption varies across countries based on varied Here's a comparative analysis of online banking transactions in India compared to some other countries:

Country	Online Banking Transactions	Percentage of Digital Transactions	Growth Rate	Key Drivers	Challenges
<b>India</b>	10+ billion UPI transactions per month	75-80% of all digital transactions	80-100% year-over-year	UPI, smartphone penetration, fintech apps	Digital divide in rural areas
<b>China</b>	USD 80 trillion annually through Alipay and WeChat Pay	90% of urban consumers use mobile payments	35% annual growth	QR code payments, mobile-first economy	Regulatory scrutiny over fintech
<b>United States</b>	80% of adults use online banking apps (Zelle, Venmo)	50-55% of digital transactions	20-25% annual growth	Debit/Credit cards, peer-to-peer payment services	Fragmentation of payment systems
<b>Nordic Countries</b>	98% of population uses online banking; less than 1% cash usage	Cashless society	10-15% growth	Strong regulatory support, fintech adoption	Privacy concerns in digital transactions
<b>Japan</b>	60-65% of population uses online banking	Moderate adoption, preference for cash	Slower growth	Traditional banking, conservative payment culture	Cultural reliance on cash

In India, banks are leveraging innovative strategies to improve customer experiences through technologies like online banking, aiming to streamline operations and boost productivity. Assessing customer satisfaction with these services has become pivotal, guiding banks in enhancing efficiency and retaining clientele. The shift towards online banking represents a paradigm shift in banking services, offering enhanced timeliness and accuracy compared to traditional methods. In India, the COVID-19 pandemic accelerated the adoption of digital transactions, positioning the country as a leader in embracing digital payment methods (BCG Report, 2022) with the value of digital payments projected to increase from US\$3 trillion to US\$10 trillion by 2026 representing a three-fold growth over the next few years. Further, the digital payments will make up nearly 65% of all payments by 2026, compared to the current 40% indicating a significant shift towards digital transactions in the economy. The adoption of UPI is expected to surge from 35% in FY 21 to 75% in the next five years showing a strong growth in its usage among consumers and businesses. All these help in positioning Indian banking as a model for future advancements.

However, with the rise of online banking comes heightened concerns over cybersecurity. Banks must ensure a secure online environment to safeguard customer information and build trust (Firdous, 2017). Customer satisfaction in online banking depends on various factors like service quality, customer experience, trust, and technological advancements (Dahal, 2019; Gaire, 2018; Sharma et al., 2020). Understanding these dynamics is crucial for

improving service delivery and fostering customer loyalty in the digital age.

Hence, customer satisfaction remains a focal point for marketers and practitioners. This study takes a relational approach, examining the interplay between service quality, customer experience, technological advancements, customer perception, adoption rates, online trust, and customer satisfaction in the context of online banking services.

## REVIEW OF LITERATURE

Customer satisfaction is a complex and multifaceted concept that varies in definition across different research studies. Generally, it refers to the emotional response customers have after using a product or service, shaped by how well it aligns with their expectations (Kotler, 2000; Oliver, 1980). This perception can be assessed in two main ways: transactional satisfaction, which gauges satisfaction from individual interactions, and cumulative satisfaction, which considers overall experiences over time (Boshoff, 1999; Zeithaml et al., 1993). Perceived quality, on the other hand, focuses on a customer's broader evaluation of a product or service's excellence (Eshghi et al., 2007). In the realm of online banking, factors influencing customer satisfaction include service quality—covering aspects like reliability, responsiveness, and security—and website characteristics such as design and navigation ease (Liao and Cheung, 2002; Yoon, 2010). Customer satisfaction

strongly correlates with loyalty and retention, as satisfied customers are more likely to continue using a service and recommend it to others (Fornell et al., 1996; Richens, 1983). Businesses, especially in service-oriented sectors like online banking, prioritize customer satisfaction to enhance loyalty, minimize customer turnover, and attract new clientele (Beerli, 2004; File and Prince, 1992). Overall, customer satisfaction serves as a critical determinant of success in industries where service quality and user experience are pivotal.

Lassar et al. (2000) explored two critical factors in understanding the quality of bank services. They noted that, despite the essential role of SERVQUAL in quality evaluation, both functional and technological components of banking services must be considered. In a related study, Sureshchandar et al. (2003) examined service quality in private, public, and international banks in India, finding that customers' perceptions are significantly influenced by the technological aspects of service delivery. They determined that the technical features of financial services were considered most important, while human components were ranked lower in-service evaluations. A study by Parasuraman et al. (2005) emphasizes reliability, responsiveness, assurance, empathy, and tangibles as key determinants of service quality in the context of e-banking. This framework underscores the significance of reliable service delivery, responsive customer support, trustworthy security measures, empathetic handling of customer concerns, and the usability of digital interfaces. Other studies have also used the SERVQUAL five dimensions model to investigate service quality and customer satisfaction in the banking industry, including Apornak (2017), Oskooii and Albonaiemi (2017), Bourne (2016), Raza et al. (2015), Kumari and Rani (2011), Kwon and Lee (1994), and Wang et al. (2003). To better assess service quality in financial institutions, some studies have modified the SERVQUAL model. For example, Host and Knie-Anderson (2004) added a pricing dimension to the SERVQUAL model.

Similarly, Long and Vy (2016) emphasized that banking service quality standards are now a key factor in increasing customer satisfaction and fostering customer loyalty.

Sirapricha and Tocquer (2012) added that customer experience results from interactions between the customer and the company, which includes engagements with employees, self-service technology, the service environment, service businesses, and the clients themselves.

Transactions in online banking involve highly confidential client information (Gefen, 2001; Morgan & Hunt, 1994). Due to security flaws and a general lack of trust in online service providers, people are cautious about disclosing

sensitive information such as bank details over the internet (Suh & Han, 2002). To improve customer satisfaction and ensure the effective adoption of Customer Relationship Management (CRM), businesses must coordinate all their tasks and recognize the role of technology as a facilitator in this process (Hart et al., 2004).

Research consistently shows that perceived usefulness significantly influences customers' intentions to adopt new technologies (Jeyaraj et al., 2006).

Studies specific to online banking indicate that perceived usefulness strongly predicts customers' willingness to use online banking services (Pikkarainen et al., 2004; Gounaris and Koritos, 2008).

Moreover, perceived ease of use, another construct from the Technology Acceptance Model (TAM), complements perceived usefulness by assessing how easy customers find it to navigate and utilize online banking platforms (Davis, 1989; Wang et al., 2003). User-friendly interfaces and intuitive designs reduce perceived complexity and enhance customers' confidence in using online banking, thus encouraging adoption (Pikkarainen et al., 2004; Gounaris and Koritos, 2008).

The current research aims to examine the relationships among various factors affecting customer satisfaction in online banking services, namely service quality, customer perception, customer experience, customer adoption, technological advancements, and online trust.

Previous research has attempted to establish direct relationships between service quality and customer satisfaction (Prasadh, 2019; Rizwan Rheem Ahmed et al., 2017), customer experience and customer satisfaction (Asad et al., 2016; Sharma et al., 2016; Pikkarainen et al., 2004), and technological advancements and customer satisfaction (Muhammad Tahir Jan et al., 2014; Alhaji Abubakar Aliyu et al., 2014; Isibor et al., 2018).

However, a research gap in indirect relationships persists among these variables. Specifically, the indirect relationships between service quality and customer satisfaction, customer experience and customer satisfaction, technological advancements and customer satisfaction have not been thoroughly investigated.

This research seeks to address this gap by examining the role of customer perception in the relationship between service quality and customer satisfaction, the role of customer adoption in the relationship between customer experience and customer satisfaction, and the role of online trust in the relationship between technological advancements and customer satisfaction.

**The measurement items of the study have been identified through literature review.**

**Table: 1**  
**Measurement Items**

S.No.	Items	Author
Service Quality		
1	The service delivered through the online banking is quick.	Farnaz Beheshti Zavareh et al. (2012)
2	The online banking part of website is always ready for operations.	
3	When the online banking section promises to complete a task by a certain time, it does so.	
4	A transaction is quickly completed through the bank’s website.	
Customer Perception		
5	I have developed positive perception about online banking services after using these services.	Chakib Hamadi (2010)
6	My bank takes care of my personal information while using online banking .	
7	Every transaction is fast in online banking.	
Customer Experience		
8	I have experienced very good services with online Banking.	Cheolho Yoon (2010)
9	My most of the expectations have been met after using online banking services.	
10	I have opted for online banking services after feeling more usefulness in online banking.	
11	I have experience ease of use while using online banking services.	
Customer Adoption		
12	The bank gives prompt response to customer’s request.	Mahiswaran Selvanathan et al. (2016)
13	The bank quickly resolves problems related to online transactions.	
14	The online banking customer services are not easily accessible through various means of internet.	
Technological Advancements		
15	I can easily find the information whichever I need on the bank’s website.	Muhammad Tahir Jan et al. (2014)
16	I am able to use online banking services of bank’s website without much effort.	
17	Easy navigation of bank’s website helps customers to use online banking services.	
Online Trust		
18	My trust has been built up in online banking services after experiencing security of personal information.	Muhammad Tahir Jan et al. (2014)
19	Technological Advancements have enhanced my trust in online banking services.	
20	Developing technology has made online banking services more convenient and trustworthy.	
Customer Satisfaction		
21	I am satisfied with the transaction process in the online banking.	Demyana Nathan (2014)
22	I am satisfied with the products/services provided through online banking.	
23	Overall, I am satisfied with the online banking services offered by the bank.	



## OBJECTIVES

The present study has established the following objectives:

1. To analyze the impact of online banking customer satisfaction on service quality, customer experience and technological advancements
2. To examine the role of customer perception on service quality and customer satisfaction in online banking.
3. To observe the effect of customer adoption on customer experience and customer satisfaction in online banking.
4. To assess the relationship of online trust between technological advancements and customer satisfaction in online banking.

## RESEARCH METHODOLOGY

### Scale/ Instrument Development/ Questionnaire Design

The current study uses a questionnaire to evaluate the relationship between customer satisfaction in online banking services related constructs (service quality, customer perception, customer experience, customer adoption, technological advancements, online trust and customer satisfaction). The questionnaire contains measurement statements of various constructs adopted from the previous literature.

### Data Collection Procedure

The primary data has been gathered with the distribution of a structured non-disguised questionnaire. The questions were listed in a pre-arranged order the questionnaire was circulated among people living in the National Capital Region including Delhi, Ghaziabad, Faridabad, Noida and Gurugram. The questionnaire was circulated through online channels Data has been collected from the respondents who used online banking services. Samples were obtained using the convenience sampling technique which is a non - probability sampling method. The sample comprised elements of the population that can be analyzed faster and more conveniently. The basic premise behind sample collection for convenience sampling is, indeed, the homogeneity of the target group (Etikan et al., 2016).

In total, 1000 questionnaires were distributed initially. After removing the un-filled or redundant responses, 728 forms were found fit for statistical analysis: thereby, achieving a 73 percent response rate. The respondent distribution has been given in the table below:

The collected data has been examined with the help of validated tools and techniques. Structured Equation Modelling in which Confirmatory Factor Analysis (CFA) and Path Analysis were used to confirm those extracted factors using SPSS 24 and AMOS 21.

## Rationale of the study

The rationale of this study can be bifurcated into two parts. The first and the basic rationale behind conducting this research is to check the relationship amongst different factors affecting customer satisfaction viz; service quality, customer perception, customer experience, customer adoption, technological advancements, online trust and customer satisfaction in online banking services. An in-depth analysis would help in giving a clear picture as to what ultimately makes the customer satisfaction in online banking services. A question remains whether service quality, customer experience and technological advancements directly relate to customer satisfaction, or if there are other factors that can mediate this relationship. Research done in the past has tried to establish a direct relationship between service quality and customer satisfaction (R. Ragu Prasad, 2018; Rizwan Rheem Ahmed et al., 2017; Debarshi Ghosh et al., 2017), customer experience and customer satisfaction (Mohsen Mazaheri Asad et al., 2016 ; Meenakshi Sharma et al., 2014; Tero Pikkarainen et al., 2004) & technological advancements and customer satisfaction (Muhammad Tahir Jan et al., 2014; Alhaji Abubakar Aliyu et al., 2014; A. A. Isibor et al., 2018). However, an unexplored area of indirect relationship still persists in the relationship of service quality and customer satisfaction, customer experience and customer satisfaction & technological advancements and customer satisfaction. To overcome this gap, this research has tried to incorporate the mediating role of customer perception in relationship of service quality and customer satisfaction, the mediating role of customer adoption in relationship of customer experience and customer satisfaction & the mediating role of online trust in relationship of technological advancements and customer satisfaction.

## Conceptual Framework

A conceptual framework, depicted in Figure 1, have been designed for the study based on the rationale and objectives. This framework provides a diagrammatic presentation of the actual research work. As shown in Figure 1, service quality, customer experience and technological advancements are independent variables, customer perception, customer adoption and online trust are mediating variables and customer satisfaction is dependent variable.

In this conceptual framework, service quality leads to customer satisfaction. This relationship is supported by the research conducted in the past. Rizwan Rheem Ahmed et al. (2017) identified the relationship between service quality and customer satisfaction in online banking services. In Khare's (2011) study on online banking services, it was found that high service quality significantly enhances customer perception, leading to more favorable views of the bank. Improved service quality was directly correlated with increased customer satisfaction. Additionally, high service quality fostered customer loyalty, making users more likely to continue using and recommending the bank's online services.

Trust in online banking was also positively influenced by perceived service quality, with secure and user-friendly services building greater trust among customers. Overall, banks that invested in improving their online service quality gained a competitive advantage in the market.

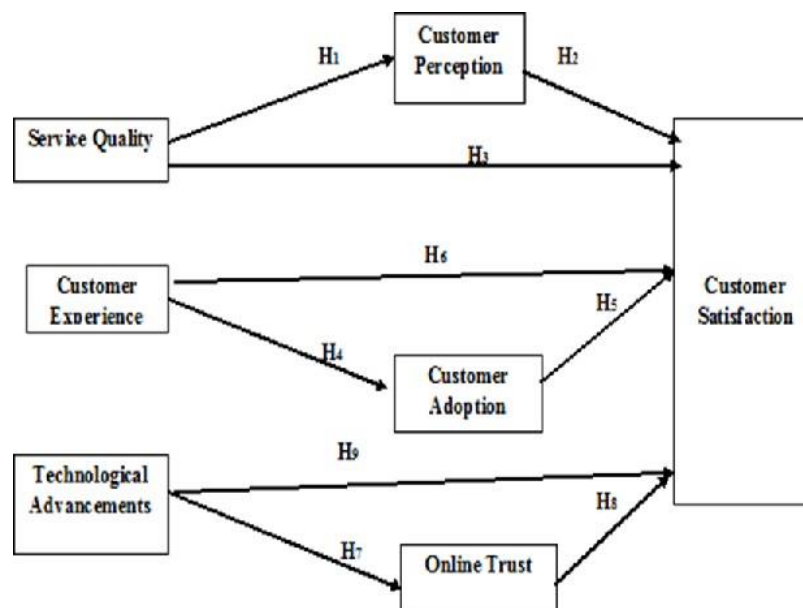
Alhaji Abubakar Aliyu et al. (2014) identified a direct relationship between technological advancements and customer satisfaction in the banking sector. Their study demonstrated that the implementation of advanced technologies, such as online banking platforms, mobile banking apps, and automated customer service systems, significantly enhanced customer experiences. These advancements contributed to greater convenience, efficiency, and accessibility, leading to higher levels of customer satisfaction. The study underscored the importance of continuous technological innovation in maintaining competitive advantage and meeting the evolving needs and expectations of customers in the banking industry. Moreover, Asad et al. (2016) identified a direct relationship between customer experience and customer satisfaction in online banking. Their study highlighted that positive customer experiences,

characterized by factors such as ease of use, reliability, personalization, and responsive customer support, significantly contribute to higher levels of customer satisfaction. The findings emphasized the importance of enhancing various aspects of the online banking experience to meet customer expectations and foster satisfaction. The research suggested that banks should continuously improve their digital interfaces and service quality to maintain and increase customer satisfaction in the competitive online banking landscape.

This research will examine the relationship between customer experience and customer adoption, customer adoption and customer satisfaction, customer experience, customer satisfaction, technological advancements and online trust, online trust and customer satisfaction & technological advancements and customer satisfaction.

Further, the above-mentioned relationship would be given a more concrete structure only if the inter-linkage is established among them. So, this framework will check the mediation among the constructs in this study. This will help in getting a more robust outcome for the study.

### Hypothesis Formulation



Based on the framework discussed along with the supportive literature the following hypotheses have been established.

#### Relationship between service quality and customer perception:

Ravichandran et al. (2010) sought to understand the sociodemographic and rational profiles of public retail banking consumers. Their primary aim was to evaluate the extent to which the dimensions of service quality could predict a multidimensional model of behavioral intentions, as proposed by Parasuraman et al. (1996), among public banking customers in India. The study found that public retail banking consumers hold specific

perceptions of service quality, which are crucial in shaping their behavior. The research emphasized that managers should focus on certain dominant factors from the SERVQUAL model to assess, manage, and improve customer perceptions of service quality within public banking institutions. However, Ravichandran et al. (2010) concluded that the service quality construct introduced by Parasuraman et al. (1988) is not, by itself, sufficient to fully predict behavioral intentions. Additional factors beyond the SERVQUAL dimensions need to be considered to accurately forecast customer behavior in the context of Indian public banking. Therefore, the following hypothesis can be proposed:

**H1: There exists a relationship between service quality**

*and customer perception.*

### **Relationship between customer perception and customer satisfaction:**

There has been extensive research investigating the interrelationships between consumer perceptions of quality, customer satisfaction, and customer loyalty (Cronin et al., 2000; Udo, Bagchi, & Kirs, 2010; Kassim & Abdullah, 2010). Despite this, there remains some uncertainty about the relationship between service quality and customer satisfaction, particularly regarding how these two concepts relate to each other and the sequence in which they form in the consumer's mind.

Traditionally, many researchers have suggested that customer satisfaction with specific circumstances eventually leads to an overall assessment or opinion of service quality over time (Parasuraman et al., 1988). This implies that satisfaction might serve as a precursor to perceptions of quality. However, an alternative view argues that customer satisfaction is directly influenced by perceptions of service quality, regardless of whether specific expectations are met. This perspective treats service quality as an independent factor influencing customer satisfaction.

Empirical research supports the notion that service quality significantly impacts customer satisfaction. Studies by Cronin & Taylor (1992), Bloemer et al. (1998), Caruana (2002), and Lewis & Soureli (2006) provide evidence that perceived service quality directly contributes to customer satisfaction. Based on this line of thought, this research hypothesizes that perceived quality has a considerable influence on the level of happiness experienced by customers. Providing support for this argument in this research, it was expected that perceived quality would have a relationship with considerable influence on the level of happiness experienced by customers. Therefore, the following hypothesis can be proposed:

**H2: *There exists a relationship between customer perception and customer satisfaction.***

### **Relationship between service quality and customer satisfaction:**

Alalwan et al. (2018) conducted research focusing on dimensions such as website quality, system quality, information quality, and service quality in online banking. They found that these dimensions significantly influence customer satisfaction and loyalty, with system quality (e.g., reliability and efficiency of transactions) and service quality (e.g., responsiveness and support) playing critical roles in shaping positive customer experiences and intentions to continue using online banking services. Furthermore, a study by Hong et al. (2019) explored the impact of perceived service quality dimensions—reliability, responsiveness, assurance, empathy, and tangibles—on customer satisfaction and loyalty in the context of mobile banking services. Customers get services from a firm, and the link between the quality of

those services and the level of pleasure those consumers feel about those services determines the customers' overall attitude toward the organisation. It is possible to draw the conclusion that there is a connection between using online banking and high levels of customer satisfaction, which is something that can be investigated using the SERVQUAL dimensions (Nupur, 2010). An evaluation model that was proposed by Woodside et al. (1989) places an emphasis on the connection that exists between perceived service quality, customer satisfaction, and interest in making a purchase. According to the findings of the study, a moderating variable between service quality and repurchases interest is a customer's level of satisfaction. In other words, the quality of the service has an effect on the level of client satisfaction, which in turn has an effect on the level of repurchase interest. Therefore, the following hypothesis can be proposed:

**H3: *There exists a relationship between service quality and customer satisfaction.***

### **Relationship between customer experience and customer adoption:**

Customers feel less of a risk while using internet banking if the websites they visit are user- friendly and simple to use. This is due to the fact that consumers in an online environment do not contact with one another face-to-face. Pikkarainen et al. (2004) found that ease of navigation, intuitive design, and user-friendliness are critical for encouraging customers to adopt online banking. Liao and Cheung (2002) highlight the importance of convenience and time-saving as critical aspects of customer experience that lead to adoption. When customers perceive that online banking saves time by reducing the need for physical visits to the bank, they are more likely to adopt it. The ability to conduct banking transactions anytime and from anywhere is a key driver for adoption. Shaikh and Karjaluo (2016) found that mobile banking adoption is heavily influenced by user experience factors such as app design, ease of navigation, and fast loading times. Positive mobile experiences enhance convenience and usability, which are critical for adoption. Luo et al. (2010) found that these value-added features significantly influence both customer satisfaction and adoption rates in mobile banking. In their research on online banking, Gounaris and Koritos (2008) used the PCI model, which is based on variables extracted from TAM. Therefore, the following hypothesis can be proposed:

**H4: *There exists a relationship between customer experience and customer adoption.***

### **Relationship between customer adoption and customer satisfaction:**

Amin (2007) showed that customers who quickly adopted online banking services due to perceived relative advantages expressed higher satisfaction levels compared to late adopters. Al-Somali, Gholami, and Clegg (2009) found that when customers find the banking interface simple and intuitive, they are more likely to adopt the



technology and experience higher satisfaction with the service. Simplicity reduces the perceived complexity of performing banking transactions online, contributing to positive user experiences and satisfaction. Yousafzai, Pallister, and Foxall (2003) showed that customers who trust the online banking platform are more likely to adopt it and, in turn, experience higher satisfaction. Sadeghi and Farokhian (2011) propose a feedback loop between adoption and satisfaction in online banking. As customers adopt and use online banking services, positive experiences lead to higher satisfaction, which further encourages ongoing adoption of more features and functionalities. Therefore, the following hypothesis can be proposed:

**H5: *There exists a relationship between customer adoption and customer satisfaction.***

#### **Relationship between customer experience and customer satisfaction:**

The capacity of a business to provide an experience that distinguishes it in the eyes of its customers helps to enhance the amount of money that consumers spend with the business and, in the best case scenario, to inspire customer loyalty to the company's brand. According to Jessica Sebor, "loyalty is today determined largely by the contact a firm has with its consumers and how effectively it delivers on the demands and requirements of those customers." (2008). Recent studies continue to deepen our understanding of customer experience (CX) by exploring its various dimensions and implications in contemporary business contexts. Verhoef et al. (2020) describe CX as a dynamic process influenced by interactions across multiple touchpoints throughout the customer journey, emphasizing that CX is about the overall relationship customers develop with a brand over time. Lemon and Verhoef (2016) highlight the role of emotional connections in shaping CX, arguing that emotional experiences significantly impact customer satisfaction and loyalty, often more than functional attributes alone. This aligns with earlier findings by Carbone and Haeckel (1994) regarding the lasting impressions customers form based on emotional and sensory cues during their interactions with products and services. Therefore, the following hypothesis can be proposed:

**H6: *There exists a relationship between customer experience and customer satisfaction.***

#### **Relationship between technological advancements and online trust:**

Hoffman, Novak, and Peralta (1999) suggest that the perception of security technologies is essential in fostering trust in online environments, especially when sensitive personal or financial information is involved. Hwang and Lee (2012) argue that advancements in authentication technologies, such as biometric verification (fingerprint, facial recognition) and multi-factor authentication, have improved users' trust by making online services more secure and less vulnerable to fraud. Luo et al. (2010)

demonstrated that mobile payment systems, supported by enhanced encryption and security features, have significantly influenced user trust in mobile and online banking. Flavián, Guinalú, & Gurrea (2006) found that when customers perceive online banking platforms as secure, they are more likely to trust the service. Therefore, the following hypothesis can be proposed:

**H7: *There exists a relationship between technological advancements and online trust.***

#### **Relationship between online trust and customer satisfaction:**

According to Achrol (1991), Moorman et al. (1992), and Morgan and Hunt (1994), trust plays an important role in relationship commitment. Many studies have established that online trust is a precursor to customer satisfaction. Gefen (2002) found that in the context of online shopping, trust influences a customer's decision to engage with and commit to an online retailer. The study suggests that trust reduces uncertainty in online transactions, thereby increasing customer satisfaction. Yoon (2002) also highlights the role of perceived trustworthiness in online platforms. Trustworthiness, which includes factors such as integrity, competence, and benevolence, directly impacts customer satisfaction. Customers are more likely to feel satisfied when they trust the security, privacy, and reliability of an online service provider. In the context of online banking, Flavián, Guinalú, & Gurrea (2006) demonstrated that trust plays a critical role in shaping customer satisfaction. Their research found that customers are more likely to be satisfied with their online banking experience if they trust the bank to protect their personal data and to perform transactions accurately and securely. Therefore, the following hypothesis can be proposed:

**H8: *There exists a relationship between online trust and customer satisfaction.***

#### **Relationship between technological advancements and customer satisfaction:**

The use of digital technology has had a huge impact on the financial services industry all over the world. (Jovovi et al. 2017; Angur et al. 1999) The business process of today's banks is technologically compatible, which allows for worldwide connections between financial institutions. It is possible to carry out a more extensive range of banking operations by using technology, which may also assist the banking sector in maintaining its competitive position in the financial market. The assurance of quality services to customers and their satisfaction is the most important benefit brought about by rapid technological advancement (Prasadh and Suresh 2016; Gümüş and Oner 2016; Guo et al. 2008; Arasli et al. 2005; Angur et al. 1999; Herington and Weaven 2007; Metawa and Al-Mossawi 1998; Newman and Cowling 1996; Raza et al. 2015). Through technological advancement implementing cutting-edge technology is essential in order to provide effective services to customers. This, in turn, helps financial institutions stand out from their competitors. In order



to provide a positive response, financial institutions are routinely increasing their investments in information and communication technologies. Therefore, the following hypothesis can be proposed:

**H9: There exists a relationship between technological advancements and customer satisfaction.**

## DATA ANALYSIS

**Reliability of Measurement Scale**  
Cronbach's alpha for this study was calculated to be 0.917 (23 items) and hence falls within the acceptable range.

**Table: 2**

**Cronbach alpha values of the Factors**

S.No.	Factors	Alpha***
1	ServiceQuality	.927
2	CustomerSatisfaction	.937
3	CustomerExperience	.956
4	CustomerAdoption	.950
5	TechnologicalAdvancements	.935
6	OnlineTrust	.956
7	CustomerSatisfaction	.950

### Confirmatory Factor Analysis (CFA)

When the number of factors is more than 3, Factor Analysis using EFA (Exploratory Factor Analysis) using SPSS is used to extract the exact number of factors affecting study and CFA (Confirmatory Factor Analysis) using AMOS is used to confirm the factors extracted through EFA. The most popular kind of factor analysis utilized in empirical studies is called Confirmatory Factor Analysis (Kline,2011).

For this study, the approach proposed by Hair et al. (2010)

have been utilized to examine the reliability and validity of the construct and the CFA have been done using AMOS 21.0.

A measure of convergent validity has been performed to ascertain the level of agreement between the construct's constituent parts. The degree of dissimilarity between the constructs have also been determined by calculating the discriminant validity. Composite Reliability (CR) more than .7, Average Variance Explained (AVE) greater than 0.5, are methods for assessing convergent validity (Hair et al., 2012).

**Table: 3**

**Measurements of Convergent Validity**

Construct	CR*	AVE**
Service Quality	0.936	0.785
Customer Perception	0.950	0.762
Customer Experience	0.956	0.846
Customer Adoption	0.927	0.761
Technological Advancements	0.938	0.834

<b>Online Trust</b>	0.738	0.639
<b>Customer Satisfaction</b>	0.837	0.739

Source: Author's own calculation

**Note:** \*CR should be greater than 0.70 for convergent validity (Hair et al., 2012)

\*\*AVE should be greater than 0.50 for convergent validity (Hair et al., 2012)

\*\*\*CR > AVE

### Discriminant Validity

In order to ensure discriminant validity, Hair et al. (1998) state that the AVE of the distinct constructs have to be more than the squared correlation among the individual components, with an AVE value of more than 0.5 being required. Discriminant validity may be inferred from the

variable's relatively low level of correlation with other constructs outside of the one that is supposedly connected with it. To confirm discriminant validity, the Maximal Shared Variance (MSV) of many constructs have been compared to the Average Variance Extracted (AVE) using this approach (Fornell & Larcker, 1981a). Table 4 shows that the AVE values exceed the MSV values.

**Table:4**  
**Validity Measurement Index**

<b>Construct</b>	<b>AVE</b>	<b>MSV</b>	<b>ASV</b>
Service Quality	0.785	0.465	0.289
Customer Perception	0.762	0.123	0.070
Customer Experience	0.846	0.465	0.293
Customer Adoption	0.761	0.324	0.228
Technological Advancements	0.834	0.297	0.189
Online Trust	0.758	0.374	0.327
Customer Satisfaction	0.661	0.289	0.342

Source: Author's own calculation

\***Note:** MSV and ASV should be less than AVE for discriminant validity (Fornell & Larcker, 1981b)

### Assessment of Measurement Model Fit

The fitness of the measurement model is evaluated after assessing the validity of the model. This step validates the support of the measurement model for the theoretical structure. Various model fit indices are used in this analysis, and this facilitates the confirmation of the model fit. The values are  $CMIN(\chi^2) = 401.736$ ,  $(df) = 179$ ,  $CMIN/df (\chi^2/df) = 2.244$  which is lower than the threshold of 4,  $GFI = 0.938$ ,  $AGFI = 0.920$ ,  $CFI = 0.983$ ,  $IFI = 0.983$ ,  $NFI = 0.969$ , and  $ECVI = 0.833$ . The evaluation of the model fit in this study is carried out as indicated by Boomsma (2000). The required limit has been achieved by AGFI, IFI, NFI and CFI. The RMR is 0.063, that is lower than 0.1; the RMSEA have been observed as 0.045, which is lower than 0.06. Every model fit measure indicates that the model is, indeed, a good fit.

The structural model was evaluated, and its psychometric characteristics were estimated. To evaluate how well our proposed model fits the data, we compared it to a number of competing hypotheses. Model 1 is a simple representation of the correlation between service quality, customer experience, technical progress, and satisfied customers. Model 2 is quite near to our predicted model; however, it doesn't account for the correlation between service quality, customer experience, technological progress, and satisfied customers. Our proposed structural model is shown in Model 3. Alternative models will be compared to the hypothesized model using model fit indices. Model fit indices indicate that the proposed structural model provides a better match than competing models (Model 1, 2). Key data for the hypothesized structural model, represented

by Model 3, are as follows:  $\chi^2=414.707$ ,  $df=180$ ,  $\chi^2/df=2.304$ ,  $GFI=0.936$ ,  $AGFI=0.918$ ,  $SRMR=$

$R=0.082$ ,  $RMSEA=0.046$ . Table 5 displays all values.

**Table 5:**

**Model Fit indices comparison between hypothesized model and alternative models**

Fit Indices	Model 1	Model 2	Model 3
	SQ, CE, TA CS	Hypothesized model without direct link between SQ, CE, TA and CS	Hypothesized model SQ, CE, TA CS;
		CP CS;	CP CS;
		CA CS;	CA CS;
		OT CS	OT CS
$\chi^2$	1214.870(185)	419.940(181)	414.707(180)
$\chi^2/df$	6.567	2.320	2.304
GFI	.818	.935	.936
AGFI	.773	.917	.918
SRMR	.822	.094	.082
RMSEA	.096	.047	.046

Source: Author's calculation

### Path Analysis

The direct relationship between independent and dependent variables have been tested before beginning with the mediation analysis. The present research tries to study service quality, customer experience and technological advancements as independent variables (IDV). Customer Satisfaction is Dependent Variable (DV). The study depicted that all relationships except customer perception and customer satisfaction, customer adoption and customer satisfaction & online trust and customer satisfaction relationships came out to be significant. The relationship depicting the impact of customer perception on customer satisfaction (H2) have been found to be insignificant, as the p-value came out to be more than 0.05, i.e. 0.339. The statistical results also do not support the relationship as ( $b=0.035$ ,  $p=***$ ); CR (0.955), which is less than the required 1.96 value. The relationship depicting the impact of customer adoption on customer satisfaction (H5) have been found to be insignificant, as the p-value came out to be more than 0.05, i.e. 0.289. Likewise, the statistical results do not support the relationship as ( $b=0.045$ ,  $p=***$ ); CR (0.855), which is less than the required 1.96 value. The relationship depicting the impact of online trust on customer satisfaction (H8) have been found to be insignificant, as the p-value came out to be more than 0.05, i.e. 0.299. Likewise, the statistical results do not support the relationship as ( $b=0.055$ ,  $p=***$ ); CR (0.785), which is

less than the required 1.96 value. These are the only insignificant direct relationships in the study, hence, are removed from any further analysis. However, service quality is found to significantly impact customer satisfaction (H3) as the p-value came out to be less than 0.5, ( $b=0.469$ ,  $p=***$ ); CR (15.467), thus significant. Both the relationships, viz. service quality-customer perception (H1), as well as service quality-customer satisfaction (H3) have a significant relationship as the p-value came out to be less than 0.5. The analysis also supported the significant relationship between customer experience and customer satisfaction (H6), as ( $b=0.303$ ,  $p=***$ ); CR (7.194) as p value is less than .001. Similarly, the relationship between customer experience and customer adoption (H4) is statistically supported as ( $b=0.627$ ,  $p=***$ ); CR (18.319). The relationship between technological advancements and online trust (H7) came out to be significant, as the p-value came out to be less than 0.001. Statistical result supports technological advancements and online trust relationship, as ( $b=0.574$ ,  $p=***$ ); CR (13.543). Moreover, the relationship depicting technological advancements-customer satisfaction (H9) also came out to be significant, as the p-value is less than 0.05, as well as ( $b=0.560$ ,  $p=***$ ); CR (17.103) values are significant.

The study also examines the mediating role of customer perception, customer adoption and online trust. This helps in a better understanding of the inter-relationships of fac-

tors affecting customer satisfaction.

**Table 6:**

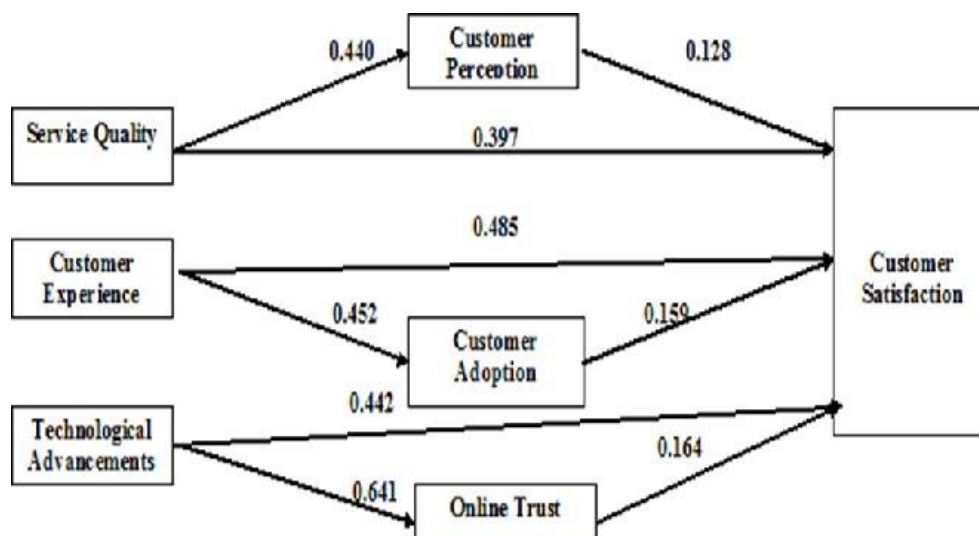
**Path Analysis of the Independent and the Dependent Variable**

Hypothesis Number	Hypothesized Relationships	Path Estimates	S.E.	C.R.	P value	Result
H1	SQ CP	.303	.042	7.194	***	Positive Relationship
H2	CP CS	.035	.037	.955	.339	No Relationship
H3	SQ CS	.574	.042	13.543	***	Positive Relationship
H4	CEC A	.635	.067	6.955	***	Positive Relationship
H5	CA CS	.055	.047	.845	.369	No Relationship
H6	CE CS	.560	.033	17.103	***	Positive Relationship
H7	TA OT	.283	.036	7.932	***	Positive Relationship
H8	OT CS	.025	.038	.745	.267	No Relationship
H9	TA CS	.380	.039	9.792	***	Positive Relationship

Notes: \*\*\* $p < 0.001$ ; \*\* $p < 0.05$ ; \* $p < 0.10$

Source: Author's own calculation

**Figure2: Path analysis**



### Mediation Analysis

The mediation analysis aims to clarify the relationship between the predictor, as well as the criterion variable. The predictor variable is the IDV, while the criterion variable is the DV.

The first indirect effect of service quality on customer satisfaction through customer perception is -.1910. The said effect is negative due to the reason that the bootstrap confidence interval excluded is below zero (-.2021 to -.0987). Service Quality leads to higher Customer Perception (0.5745), however, this enhanced Customer Perception was not supported with higher customer satisfaction. The second indirect effect of customer

experience on customer satisfaction through customer adoption is 0.0712. The effect came out to be positive owing to the reason that the confidence interval is above zero (.0084 to .1378). Customer Experience leads to higher customer adoption (0.4956), and a higher customer adoption leads to higher customer satisfaction (0.1438). The third indirect effect of technological advancements on customer satisfaction through online trust is 0.0852. As discussed previously, the positive effect is due the confidence interval being above zero (.0421 to .1366). Technological advancements lead to online trust (0.2452), and a higher online trust leads to higher customer satisfactions (.3476). Hence, based on statistical evidence, it is deduced that the above-mentioned three indirect relationships are significant.



**Table7:**  
**Mediation Table**

Effect	Effect	BootLLCI	BootULCI
Ind1SQ->CP->CS	-.1510	-.2021	-.0987
Ind2CE->CA->CS	.0712	.0084	.1378
Ind3TA->OT->CS	.0852	.0421	.1366

\*Notes:

SQ=ServiceQuality;CP=CustomerPerception;CE=CustomerExperience;CA=CustomerAdoption; TA=Technological Advancements; OT=Online Trust; CS= Customer Satisfaction. Ind=Indirect

## CONCLUSION

Customer satisfaction is the ultimate objective of every organization. To enhance customer satisfaction, organizations continuously adopt innovative methods for delivering goods or services. Banks, in particular, are leveraging the latest technology to make services more secure and convenient, thereby increasing customer satisfaction. A significant shift is occurring from traditional banking to online banking, which offers greater convenience for customers. Several factors influence customer satisfaction in online banking services, including service quality, customer perception, customer experience, customer adoption, technological advancements, and online trust. The study revealed that service quality shares a significant relationship with both customer perception and customer satisfaction, customer experience shares a significant relationship with both customer adoption and customer satisfaction and technological advancements share a significant relationship with both online trust and customer satisfaction.

Service quality directly impacts customer satisfaction and also indirectly through customer perception (as a mediating variable). Similarly, customer experience directly impacts customer satisfaction and indirectly through customer adoption (as a mediating variable). Technological advancements directly impact customer satisfaction and indirectly through online trust (as a mediating variable). The findings suggest that customer perception, customer adoption, and online trust are crucial to developing customer satisfaction.

Marketers continuously strive to satisfy their customers extensively. They encourage customers to use the services offered to measure satisfaction levels accurately. This study reveals that good service quality results in a positive perception of customers towards a service,

leading to increased customer satisfaction. Additionally, the more services a customer experiences, the higher their adoption level, resulting in higher customer satisfaction. Furthermore, advanced technology enhances online trust, which further leads to higher customer satisfaction.

From the managers' viewpoint, the study supports that service quality exerts a stronger influence on customer perception and customer satisfaction, customer experience exerts a stronger influence on customer adoption and customer satisfaction (Poon, 2008) and technological advancements exert a stronger influence on online trust and customer satisfaction (Sohail et al., 2013). This implies that to increase customer satisfaction levels in online banking services, managers should develop strategies to enhance customer perception, encourage the adoption of online banking services, and build online trust.

## LIMITATIONS AND FUTURE SCOPE

The current study is one of its kind to empirically verify the inter relationship of service quality and customer satisfaction, customer experience and customer satisfaction & technological advancements and customer satisfaction with mediators customer perception, customer adoption and online trust in the online banking services. However, no study is a complete study and has some limitations. The sample selection of the study is restricted to New Delhi and related areas. Nevertheless, to boost the generalizability of the findings, data from different regions of India could also be collected. In the future, a much larger and more representative response group will allow the researcher to conduct a much more comprehensive analysis, maintaining the efficacy and reliability of the techniques used. In addition, it is possible to perform a comparative analysis between two banking sectors to see which banking sector is more dominant.

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