

Investigating the Factors Influencing the Service Quality with Online Banking Service: The Mediating Role of Customer Satisfaction (A Study on Pakistani Banks)

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Abstract

In today's highly competitive and technology-driven business landscape, understanding the issues that influence customer satisfaction and service quality has become critical for organizations seeking to maintain a competitive edge. This quantitative investigation intends to examine the impact of perceived ease of use, perceived security, and perceived usefulness on customer satisfaction and service quality. The study employs a rigorous quantitative research design, collecting data from a diverse sample of customers across various industries. Participants' perceptions of the ease of use, security, and usefulness of the products or services are measured through standardized instruments. Additionally, their levels of customer satisfaction and perceived service quality are assessed using established scales. The investigation's results point to a strong favorable influence of perceived ease of use, perceived security, and perceived usefulness on both customer satisfaction and service quality. Customers who perceive products or services as easy to use have a greater propensity to provide greater values of satisfaction and perceive better service quality. Similarly, the perception of enhanced security in products or services positively influences customer satisfaction and service quality perceptions. Moreover, perceived usefulness emerges as a critical factor affecting both customer satisfaction and service quality. Customers who perceive products or services as valuable and beneficial are more likely to exhibit higher levels of satisfaction and perceive the overall service quality to be superior. The implications of these findings are crucial for businesses aiming to enhance their customer satisfaction and service quality levels. By concentrating on improving the perceived ease of use, security, and usefulness of their offerings, organizations can effectively bolster customer satisfaction and optimize service quality, resulting in a more loyal customer base and increased competitive advantage.

Keywords: Perceived ease of use, Perceived security, Perceived usefulness, Customer satisfaction, Service quality, Quantitative study.

Introduction

With the fast growth of expertise, online banking services have become an essential component of the banking business, offering users convenience, accessibility, and a variety of financial services. Understanding and improving consumer satisfaction with online banking services has

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become critical for banks to maintain a competitive edge in Pakistan, where digital banking usage is widespread (Muhtasim et al., 2022; Ali & Asim, 2023). The increasing use of online and mobile platforms by clients has facilitated the expansion of the banking industry as a result of the increasing adoption of IT (Li et al., 2021; Arshad et al., 2023). E-banking integrates numerous banking operations to provide full services that are adapted to the needs of the consumer (Sleimi & Musleh, 2020; Faisal & Iqbal, 2023). It is distinguished by the use of hardware, software, and financial information processing technologies. However, to match these activities with client preferences, specialists are mostly focused on properly integrating hardware, software, and network technologies (Al Ali, 2021; Hayat et al., 2022). E-banking uses technologies such as electronic wallets, electronic checks, electronic money, and several card kinds (credit, debit, ATM, and expense) in addition to POS systems (Majumdar & Pujari, 2022; Hayyat et al., 2023). E-banking requires strong technological and software facilities, regulatory and social structures, CRM networks, and good HRM to operate (Pooya et al., 2020; Iqbal et al., 2023). Traditional banking, on the other hand, is still widely used in many nations to perform financial transactions (Deraz, & Iddris, 2019).

Many nations have invested much in the development of e-banking systems. Despite their availability, evaluations reveal that prospective customers do not utilize them, which uncertainties banks. As a result, it is mandatory (Zouari & Abdelhedi, 2021; Kousar & Shafiq, 2023). Furthermore, knowing the elements that influence user perspectives is crucial since they have a direct impact on how well new information technology is used (Alhosani, & Tariq, 2020). Due to the increasing expansion of Internet banking, clients are urged to use e-commerce, the Internet, and the financial and banking sectors (Alzoubi, & Inairat, 2020; Kumar & Khan, 2023). As a result, expanding and making customer satisfaction and access to financial services easier is a priority. Training personnel, tax duties, legal responsibilities, finance, and general company advice. The use of excellent online banking business support services has economic benefits as well; managers need to be aware of factors that might influence customers given that there are more than 1 billion searches for business support keywords each month around the globe (Muhtasim et al., 2022; Mastoi, 2022).

In the context of service marketing, neither the impacts of service quality on bank profitability nor the mediating function of customer satisfaction in an automated banking system have gotten much attention. Regardless, the general literature has identified service quality and customer satisfaction as major elements impacting firm performance. The purpose of this study is to investigate the relationship between perceived automated help quality, customer satisfaction levels, and bank profitability. The general attitude of customers toward services given through electronic channels such as the Internet, phone, and ATMs is referred to as automated service quality (Jham, 2016; Muhammad Aqib et al., 2023). It is hypothesized that client preferences and perceptions of service quality have a big influence on a bank's ability to succeed. For banks to acquire and maintain a competitive edge, it is important to analyze markets based on consumer perceptions, establish a system of service delivery that matches customer expectations, and improve levels of service performance (Li et al., 2021; Nosheen & Danya, 2022). Due to its clear correlation with expenses, financial results, customer pleasure, and customer retention, service quality in a broader sense has drawn a lot of attention.

When the only focus is on face-to-face interactions between customers and employees, the literature offers a thorough description of the links between service quality, customer satisfaction, and financial performance. Technology, however, has recently had an important effect on the expansion of service delivery alternatives and a significant impact on service marketing. The use of technology in service companies has several competitive benefits, including the formation of entry barriers, greater productivity, and higher revenue generation from new offerings (Dandis et al., 2021; Riaz et al., 2023). Service quality is one of the major factors determining whether online commerce is successful or unsuccessful. However, since

managers have a propensity to place outcomes above considerations for usefulness and utilization measurement, automated quality of service has tended to lag. The necessity for training that goes beyond the interpersonal dynamics of service interactions in this technology-oriented setting is increased by the quick growth of IT-based technology solutions (Aburayya et al., 2020). The influence of technology on buyer-seller relations was stressed, who also suggested more research into how technology, for instance, affects the chain of service quality-value-loyalty. The quality issues of computerized administrations in the financial setting are becoming significant in light of their possible impact on appeal, client maintenance, productivity, positive verbal, and greatest upper hands (Sulaiman et al., 2021; Roshana et al., 2023).

Although the features that influence service quality in online banking have been examined in earlier studies, limited study has been done in the PAKISTAN environment. Examining the elements that influence service quality in online banking specifically for this area is crucial given the distinctive cultural, economic, and technical context of Pakistan (Alzoubi, & Inairat, 2020; Shafiq et al., 2023). Additionally, knowing how customer satisfaction mediates the link between service excellence and customer loyalty can help banks develop efficient methods to improve client experiences and keep a competitive edge (Sleimi, & Musleh, 2020). This study examines the factors that influence service quality in the context of Pakistan's banking system.

Problem Statement

The banking sector has seen a substantial transformation because of the rapid growth of technology, with online banking services growing in popularity with consumers. For banks, maintaining excellent service quality in online banking is still a struggle since it has a direct impact on client satisfaction, which then influences client loyalty and retention (Sulaiman et al., 2021; Ali & Asim, 2023; Muhammad Aqib et al., 2023). Investigating the variables that affect service quality in online banking within the context of Pakistani banks is necessary, as comprehends the mediating function of customer satisfaction. Despite Pakistan's increasing use of online banking services, limited research has been done that influence service quality in this industry. By studying the important variables affecting service quality in online banking this study aims to close the investigation gap by studying the mediating influence of customer satisfaction.

For Pakistani banks to develop successful strategies that improve their customers' banking experiences, it is essential to understand the elements that influence service quality in online banking. To exceed client expectations and deliver superior service, banks might concentrate on enhancing particular features of their online banking services by identifying these elements (Dandis et al., 2021). Further research on the mediating role of customer satisfaction provides light on the underlying processes through which service quality affects customer loyalty and retention.

Literature Review

The capacity of an individual or team of individuals to accommodate the usage of the equipment being utilized is known as perceived ease of use (Davis, 1989). People hold the key to ensuring that modern technology is delivered and that it is continuously used in the workplace. Work is made easier by this technology, and analysis times are increasing faster. Users may immediately experience the advantages of the technology being employed (Weerasinghe & Hindagolla, 2018). Suppliers of information technology need to explain to consumers how to utilize the equipment to fulfill tasks and boost efficiency. According to Kim and Chiu (2019), perceived ease of use may also be described as the conviction that an individual or group of consumers will be capable of utilizing a particular program to make tasks easier or to solve problems entirely. The simplicity of utilizing equipment that consumers

perceive more intensely when using it gives them confidence that it will boost their output as well as effectiveness at the workplace. Some innovations are simple to use and may be rapidly picked up (Rauniar et al., 2013). According to Bassiouni et al. (2019), the technology employed in running the process is not challenging for users alone or in groups. According to research on the usage of cell phones for travel information, simplicity of use influences intention to use by 0.094 (No and Kim, 2014). User-friendly technological innovation will be used often. Customers of technological systems won't utilize them again if they can't influence other users. It was seen as being simple to buy movie tickets online, utilize ticket-buying applications, choose a place to sit, and register the ticket on a mobile device (Palumian et al., 2021). The perceived simplicity of utilizing mobile payment systems in Surabaya for transactions including the buying of food as well as other needs of daily life makes it convenient to use apps and gain proficiency (Tarigan et al., 2022). Perceived usage is a notion that audience members have while utilizing Over-the-Top (OTT) streaming services web (Basuki et al., 2022). Customers quickly develop an attraction for the subject matter of Korean drama movies via the internet, consumers naturally comprehend the narrative of Korean drama movies via the internet transmission, and clients effortlessly comprehend the grammar that is employed in this investigation.

According to Suh and Han (2003), perceived security is a problem that customers have while making digital purchases of items or offerings, and it is brought on by a web store's security flaws. In particular, encoding, security personnel, approval, and identification have been identified as predictors of perceived security since these factors influence how users feel about their level of security (Chellappa & Pavlou, 2002). Additionally, most individuals have no idea that their data is being gathered, kept, and possibly used illegally. Individuals are becoming more hesitant to provide highly confidential data online (Hawamleh et al., 2020). The individual probability that a client perceives that their private or business data won't be disclosed, stored, and/or taken advantage of via online shopping and stored by other parties might be interpreted as perceived security in this context (Flavian et al., 2006). Eastlick et al. (2006) defined privacy as a person's capacity to manage, regulate, and expose his or her personal information with caution. Private information security is crucial for transactions conducted via the Internet, and in the words of Liu et al. (2008), privacy security indicates business truthfulness, which affects transaction decisions. The assurance of privacy may improve consumers' perceptions of carriers as trustworthy (Belanger et al., 2002). As a result, several online shopping platforms have modified their privacy policies to resolve the problems related to buyer protection. Payment mechanisms and the safety of transactions are components of perceived security. Many consumers who shop online delay immediately before pressing the "order" option, which is the last step in the purchase process. Furthermore, Bunduchi (2005) defined transaction hazards as operational hazards associated with third parties that intentionally manage the transaction improperly.

According to Delafrooz et al. (2011), customer opinions of the usefulness of purchasing goods online influence buyer objectives, and these clients experience a wealth of knowledge regarding the benefits of choosing digital commerce. Delafrooz et al. (2011) also stated that the most crucial factors in online commerce are consumer perceptions of usefulness. According to Tanada et al. (2015), perceived usefulness is determined by consumer behavior when it comes to the advantages and hazards of utilizing the product.

When obtaining service in line with the desires or desires of fulfilling user objectives, Clients are happy with the use of e-wallet payments (Chalik & Faturohman, 2022). Customer satisfaction is defined as the capacity of the facilities and the caliber of the services offered to satisfy the needs of the users (Ramanathan et al., 2017). According to Tarigan et al. (2020), customer satisfaction in the film business may be referred to as how strongly a spectator thinks satisfied or unsatisfied with a particular film product after seeing it. According to Yu et al.

(2017), customer satisfaction refers to the sentiments of joy or enjoyment created to get what is desired from the goods and services offered. Users are offered e-satisfaction by offering sufficient engagement and ease, making them feel as if their wishes are satisfied (Phan et al., 2021). Social media's widespread adoption has fundamentally altered consumer behavior, giving consumers a wide range of e-commerce possibilities. greater variety, greater item accessibility, online shopping happiness, return visits, and referrals to friends are among the online shopping at retail measuring items that consumers find to be most satisfying (Ramanathan et al., 2017). Items' consumer satisfaction is measured According to Tarigan et al. (2020), viewing films is enjoyable, has a beneficial impact, is a smart decision, and offers enjoyment and pleasure. E-wallet customers' perceptions of satisfaction and the speed of service might encourage other users to use it heavily since it offers outstanding advantages (Singh et al., 2020).

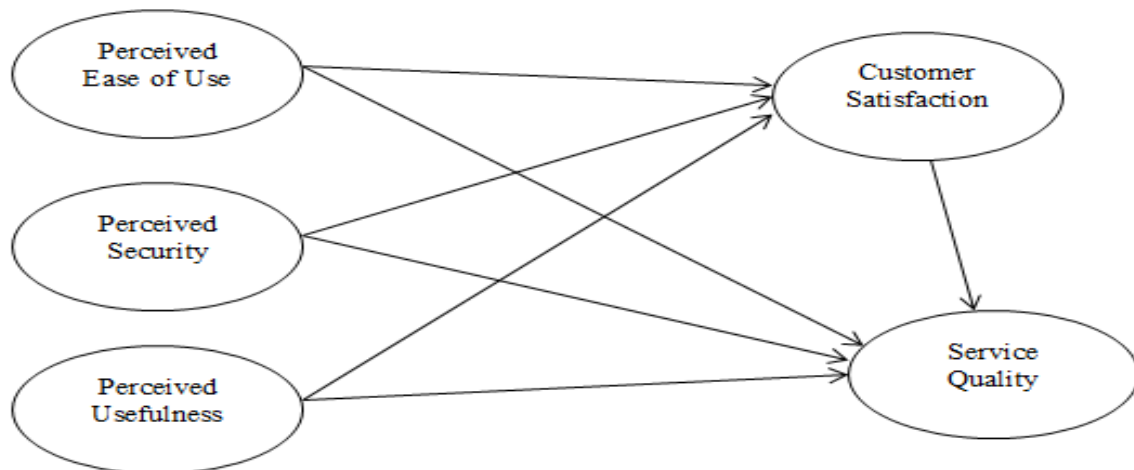
Service quality, which has drawn a lot of research attention in the subject of service marketing, is defined as "a measure of the gap between the service anticipated and consumers views on the actual service delivered" by Goel and Yang (2015) and Ramli and Fun (2009). One of the tactics that is seen to be essential for success and survival in this competitive market is offering high-quality services (Andronikidis et al., 2009). According to Nitecki & Hernon (2000), the difference between consumers' perceptions and expectations of service in terms of meeting or surpassing such expectations is known as service quality. Thinking is the process by which a consumer obtains, selects, organizes, and comprehends the information that is subjected to it in a way that is consistent with their frame of reference, which includes their attitudes, values, motivations, and previous interactions, according to Andréa (2016) and Al-Mhasnah et al. (2018). The three components that make up the perception of the quality of healthcare services are the physical setting, which includes the environment's state, the social component, and tangible factors, the qualitative interaction, which includes actions and attitudes, evaluation, and the standard of the medical procedure, and the quality of the results, which includes waiting times, customer satisfaction, and loyalty.

Methodology

To better understand the variables affecting service quality in online banking services and the mediating role of customer satisfaction, this investigation uses a quantitative research technique. Convenience sampling was used because survey investigation demands appropriate sampling methods during data gathering to guarantee that the desired quantity of answers can be collected. This is because it is considered by many as the best method for gathering customer data at a reduced cost, especially when the sampling frame is not available. Additionally, convenience selection makes it simple for investigators to contact participants and share questionnaires. This selection method has also been used in several previous investigations to gather information from clients in several industries (e.g., Shafiq et al. 2023; Aqib et al. 2023; Guan et al., 2021; Yadav & Pathak, 2016).

Research Framework

The research model depicted below outlines the various factors that impact customer satisfaction and service quality within the banking industry operating in Pakistan.

Figure 1

Hypothesis Development

H1: PEU has a positive assessment of CS

H2: PEU has a beneficial impression on SQ

H3 PS has helpful encouragement on CS

H4 PS has cooperative encouragement on SQ

H5 PU has a supportive influence on CS

H6 PU has accommodating control on SQ

H7 CS significantly boosts SQ

Research Design

Data collection was done using a cross-sectional study methodology at a certain period. This design makes it possible to examine the connections between variables and gives a quick overview of the variables affecting online banking service quality and customer satisfaction. The investigation's design is quantitative, that is based on a primary collection of the data that is used to test the hypothesis.

Sampling and Sources of Data Collection

Customers who have utilized online banking services offered by Pakistani banks were the selected respondents of the study. To make sure that participants have enough experience and understanding of online banking services, a convenience sampling approach was used. Statistics are utilized to calculate the sample size to provide adequate capability for analyzing the data.

Based on the existing literature and research objectives, a structured questionnaire was created. The questionnaire has two main sections: one gathers demographic data, and the other assesses the features prompting service quality and customer satisfaction.

Data Analysis

Descriptive Statistics

Table 1 represents the proportion of the gender distribution. 55.4 % of the male respondents participated in the study followed by 44.6% of the female respondents from a total of 101. The majority of the respondents who contributed to the investigation were male as compared to females.

Most of the respondents were between the ages of 35 and 44, accounting for 32 people or 31.7% of the sample as a whole. Individuals between the ages of 45 and 54 were 31 participants, or 30.7% of the total. 55 years and above were 18 participants making up 17.8% of the total. With 10 participants each, the age range (18–24) and the oldest range (25–34) together accounted for 9.9% of the sample as a whole. It shows that most of the respondents were 35-44 years old and respondents involved in banking.

With 44 participants, or 43.6% of the sample, having a diploma or certificate, this group had the most educational diversity among the participants. This shows a sizeable portion of participants, whose greatest degree of education was reached through the receipt of diplomas or certificates. Bachelor's degree holders in second with 27 participants, accounting for 26.7% of the total. With 16 individuals, the master's degree group represented 15.8% of the sample as a whole. The High School group had the fewest number of participants, 14 people, or 13.9% of the total.

Table 1 Gender

Gender					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Male	56	55.4	55.4	55.4
	Female	45	44.6	44.6	100.0
	Total	101	100.0	100.0	
Age					
	18-24	10	9.9	9.9	9.9
	25-34	10	9.9	9.9	19.8
	35-44	32	31.7	31.7	51.5
	45-54	31	30.7	30.7	82.2
	55 or above	18	17.8	17.8	100.0
	Total	101	100.0	100.0	
Education					
	High School	14	13.9	13.9	13.9
	Diploma/Certificate	44	43.6	43.6	57.4
	Bachelor's Degree	27	26.7	26.7	84.2
	Master's Degree	16	15.8	15.8	100.0
	Total	101	100.0	100.0	

Reliability Test

The findings of reliability and validity tests for various constructs in a research study are shown in the table. The table includes average variance extracted (AVE), Cronbach's alpha, and composite reliability. The Cronbach's alpha score for the concept CS (Customer Satisfaction) is 0.643, suggesting moderate internal consistency. With a higher value of 0.808, the composite dependability indicates good reliability. The average variance extracted (AVE) value is 0.586, which means that the CS construct's underlying components account for 58.6% of its variation. A higher Cronbach's alpha score of 0.775 for the construct PEU (Perceived Ease of Use) indicates strong internal consistency. Although lesser dependability is suggested by the composite reliability of 0.55. With an average variance extracted (AVE) of 0.522, the PEU construct's underlying components account for 52.2% of its variation. Both Cronbach's alpha (0.801) and composite reliability (0.744) scores for the construct PS (Perceived Security) show strong internal consistency and dependability. The average variance extracted (AVE) value is 0.566, which indicates that the underlying components account for 56.6% of the variation in the PS construct.

A Cronbach's alpha value of 0.671 for the concept PU (Perceived Usefulness) indicates moderate internal consistency. The composite reliability which is good, is 0.62. The average variance extracted (AVE) value is 0.567 which means that the underlying components account for 56.7% of the variation in the PU construct. Finally, Cronbach's alpha (0.822) and composite reliability (0.882) scores for the construct SQ (Service Quality) demonstrate strong internal consistency and dependability. The average variance extracted (AVE) is 0.652, meaning that the underlying components explain 65.2% of the variation in the SQ construct. All variables show that the data is consistent and reliable.

Table 2 Reliability

Variable	Cronbach's alpha	Composite reliability (rho_c)	Average variance extracted (AVE)
CS	0.643	0.808	0.586
PEU	0.775	0.55	0.522
PS	0.801	0.744	0.566
PU	0.671	0.62	0.567
SQ	0.822	0.882	0.652

R-Square

The R-square values indicate how well the model's independent variables or predictors explain the variance in the dependent variables, CS (Customer Satisfaction) and SQ (Service Quality). The R-square value of 0.555 for CS shows that the predictors explain 55.5% of the variation in Customer Satisfaction, while the R-square value of 0.334 for SQ indicates that the predictors explain 33.4% of the variance in Service Quality.

Table 3 R-Square

	R-square
CS	0.555
SQ	0.334

Hypothesis Testing

According to various research on perceived ease of use (PEU), a user-friendly design and usefulness favorably affect customers' satisfaction with online banking systems (Aburayya et al., 2020). Customer satisfaction rates are higher with their entire banking experience, they believe the online banking system is simple to use. Similar to this, perceived security (PS) affects consumer satisfaction. According to research (Sulaiman et al., 2021), users place a high value on security features including data encryption, safe login processes, and protection against fraud in online banking services. Enhanced security measures help customers feel more satisfied and have more faith in online banking services.

There is a lot of evidence in the literature to demonstrate the effect of perceived usefulness (PU) on customer satisfaction. According to earlier research (Li et al., 2021), users are more likely to find online banking beneficial when it offers them easy access to financial services, time-saving features, and efficient transaction capabilities. Customer satisfaction and loyalty are substantially influenced by how useful Internet banking is viewed. There is evidence to support the mediation function of customer satisfaction in the link between perceived usefulness and service quality. The perceived utility of online banking services and clients' views of service quality are both mediated by customer satisfaction (Dandis et al., 2021). Customers are more likely to perceive greater service quality when they find online banking services to be helpful and satisfying.

Table 4 Hypothesis

	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	Beta	T statistics (O/STDEV)	P values
PEU -> CS	0.578	0.585	0.084	.190	6.891	0
PEU -> SQ	0.526	0.544	0.053	.572	9.163	0
PS -> CS	0.399	0.423	0.091	.334	4.399	0
PS -> SQ	0.538	0.631	0.034	.546	7.365	0
PU -> CS	0.691	0.718	0.071	.234	9.726	0
PU -> SQ	0.374	0.365	0.065	.546	08.235	0
PS -> CS -> SQ	0.557	0.539	0.085	.345	0.674	0
PEU -> CS -> SQ	0.583	0.529	0.091	.435	0.908	0.364
PU -> CS -> SQ	0.399	0.423	0.091	.654	4.399	0

Discussions

The interplay between perceived ease of use, perceived security, and perceived usefulness in influencing customer satisfaction and service quality is a fascinating area of study within the realm of user experience and service provision. When customers perceive a service or product as easy to use, it naturally enhances their overall satisfaction. The ease of use reduces friction and frustration, making it a practical factor that significantly contributes to the overall service quality. Moreover, a sense of security is fundamental in building trust with customers. When

individuals perceive a service as secure, it not only reassures them but also reinforces their confidence in the service provider. This perception of security translates into higher levels of trust, which, in turn, influences customer satisfaction. Lastly, perceived usefulness is a key driver of customer satisfaction and service quality. Customers are more likely to be satisfied and perceive a service as high in quality when they find it valuable and beneficial for their needs. These three factors, perceived ease of use, perceived security, and perceived usefulness, intertwine to create a positive customer experience, which in turn bolsters both satisfaction and service quality, making them integral considerations for businesses striving to meet and exceed customer expectations.

Conclusion

The service business is now undergoing tremendous alterations across the world. Technological advancements have transformed the way services are offered in a variety of industries, including banking. The advancement of information and communication technology has had an important inspiration on financial services, resulting in significant changes. The ubiquitous availability of the Internet, e-commerce platforms, and improvements in the financial and banking industries have all contributed to online banking's expanding acceptance. This progress has increased access to financial and banking services, which benefits both people and communities.

The capacity of contemporary banking systems throughout the world to give quick access to monetary and financial services while removing the need for actual visits to bank offices is one of their most notable achievements. Online banking provides multiple benefits, including greater payment and receipt accuracy, faster economic transactions, enhanced security measures, and a variety of other perks. These benefits have accelerated the expansion and use of e-banking services. This investigation's objective is to look at the elements that impact customer satisfaction (CS) with e-banking services. To do this, a thorough evaluation of current literature was undertaken to provide a conceptual framework for the research. Following that, to gather facts, a survey was prepared from bank clients. The questionnaire was disseminated to the intended audience, and extensive validation and reliability testing was carried out to ensure its correctness and consistency.

These findings help us improve comprehension of the aspects that inspire consumer satisfaction in the world of online banking. Banks and financial institutions may improve their e-banking services to better satisfy the requirements and expectations of their consumers by recognizing and grasping these elements. The good validation of the hypotheses emphasizes the significance of the elements studied, emphasizing their major influence on customer satisfaction in e-banking systems.

It is crucial to understand that this research concentrated on the setting of e-banking services and their impact on customer satisfaction. The results might not be immediately applicable to other industries or service sectors. More research is needed to investigate other variables and aspects that may impact consumer satisfaction in online banking, taking into account different geographic locations and cultural settings. The study's findings revealed the importance of using e-banking services in customer satisfaction specific indications were discovered within the e-banking services dimension, notably resource virtualization, simplicity of use, and cost flexibility. These indicators give useful information for banks looking to use a platform for expanding their service offerings. Banks can choose from a variety of cloud infrastructure-as-a-service (IaaS) models based on their requirements. Internet banking sections that require fewer security evaluations and have limited investment capacity might consider using public cloud IaaS.

Internet banking industries, on the other hand, with stronger security needs and large investment capacities, might choose private cloud IaaS. The studies further emphasize the

importance of banking system security in impacting consumer satisfaction. This aspect encompasses indicators such as privacy, integrity, and digital signature. Additionally, it is essential to assess the current user base of Internet banking services to understand their preferences and concerns. Such insights can guide banks in prioritizing their efforts to enhance perceived security in Internet banking and address areas that require improvement. By focusing on these aspects, banks can enhance customer satisfaction and ultimately improve their overall performance in the Internet banking sector.

Another important result is that users' e-learning experiences have a major influence on customer satisfaction (CS). The sub-indicators for e-learning comprise network accessibility, mobility in time and space, and talent utilization. As a consequence, it is critical to create an application that includes important capabilities for collaborative learning, such as forums and chat functionality. Furthermore, offering certification choices to subscribers is advised. Enabling active and simultaneous conversations among users is also recommended to improve the e-learning experience. The study also demonstrated that service quality has a substantial impact on customer satisfaction. Service quality includes aspects such as cost-effectiveness, usability, and technical support. Customers who believe they are receiving good service quality view it as good value for money and are prepared to pay a higher price. This is because higher-quality services have a higher perceived value. Furthermore, boosting service quality is a proactive strategy for increasing client satisfaction and loyalty. Organizations may successfully improve customer satisfaction and gain a competitive edge in the market by concentrating on providing superior service quality.

Practical Contribution

The understanding of how perceived ease of use, perceived security, and perceived usefulness collectively impact customer satisfaction and service quality holds significant practical implications for businesses across various industries. Firstly, recognizing the importance of designing products or services with a focus on ease of use can lead to tangible improvements in customer satisfaction. Simplifying user interfaces, streamlining processes, and providing clear instructions can minimize user frustrations and enhance the overall user experience.

Secondly, the acknowledgment of the pivotal role of perceived security can guide companies in prioritizing data protection and privacy measures. Practically, robust security measures and transparent communication about these measures can build trust with customers, leading to increased satisfaction and loyalty. Businesses can also leverage security certifications and compliance as practical tools to convey their commitment to safeguarding customer information.

Lastly, understanding the influence of perceived usefulness underscores the necessity of aligning products or services with the specific needs and preferences of the target audience. Practical efforts to identify and address customer pain points and provide solutions that genuinely add value can result in higher customer satisfaction levels and improved service quality.

References

- Aburayya, A., Marzouqi, A., Alawadhi, D., Abdouli, F., & Taryam, M. (2020). An empirical investigation of the effect of employees' customer orientation on customer loyalty through the mediating role of customer satisfaction and service quality. *Management Science Letters*, 10(10), 2147-2158.
- Al Ali, A. (2021). The Impact of Information Sharing and Quality Assurance on Customer Service at PAKISTAN Banking Sector. *International Journal of Technology, Innovation and Management (IJTIM)*, 1(1), 01-17.

- Alhosani, F. A., & TARIQ, M. U. (2020). Improving Service quality of smart banking using quality management methods in UAE. *International Journal of Mechanical Production Engineering Research and Development (IJMPERD)*, 10(3), 2249-8001.
- Ali, & Asim, S. . (2023). Assessment of Service Quality and Innovation in Developing Customer Loyalty; The mediating role of Customer Commitment and Satisfaction. *Pakistan Journal of Humanities and Social Sciences*, 11(1), 243–257. <https://doi.org/10.52131/pjhss.2023.1101.0346>.
- Al-Mhasnah, A., Salleh, F., Afthanorhan, A., & Ghazali, P. (2018). The relationship between services quality and customer satisfaction among Jordanian healthcare sector. *Management Science Letters*, 8(12), 1413- 1420.
- Alzoubi, H. M., & Inairat, M. (2020). Do perceived service value, quality, price fairness and service recovery shape customer satisfaction and delight? A practical study in the service telecommunication context. *Uncertain Supply Chain Management*, 8(3), 579-588.
- Andreea, M. (2016). The Degree of Satisfaction Perceived by Healthcare Services Consumers in State Hospitals – Case Study Emergency Country Hospital From Alba Iulia, *Annales Universitatis. Apulensis Series Oeconomica*, 18(1), 11–1
- Andronikidis, A., Georgiou, A. C., Gotzamani, K., & Kamvysi, K. (2009). The application of quality function deployment in service quality management. *The TQM Journal*, 21(4), 319
- Arshad, H. M. A., Mehmood, S., & Hayyat, A. (2022). Does Impulse Buying Behavior mediate the relationship between Social Network Marketing and Customer Satisfaction? Evidence from Pakistan. *Journal of Business & Economics (JBE)*, 14(2), 96-107. Retrieved from <https://journals.au.edu.pk/ojs/index.php/jbe/article/view/611>
- Awang, Z. (2015). *SEM Made Simple: A Gentle Approach to Learning Structural Equation Modeling*. MPWS Rich Publication.
- Bassiouni, D.H.B., Hackley, C., & Meshreki, H. (2019). The integration of video games in family-life dynamics: An adapted technology acceptance model of family intention to consume video games. *Information Technology & People*, 32(6), 1376-1396, DOI 10.1108/ITP-11-2017-0375
- Basuki, R., Tarigan, Z.J.H., Siagian, H., Limanta, L.S., Setiawan, D., & Mochtar, J. (2022). The effects of perceived ease of use, usefulness, enjoyment and intention to use online platforms on behavioral intention in online movie watching during the pandemic era. *International Journal of Data and Network Science*, 6(1), 563-572, DOI: 10.5267/j.ijdns.2021.9.003
- Belanger, F., Hiller, J. S., & Smith, W. J. (2002). Trustworthiness in electronic commerce: the role of privacy, security, and site attributes. *The Journal of Strategic Information Systems*, 11(3-4), 245-270.
- Bunduchi, R. (2005). Business relationships in internet-based electronic markets: the role of goodwill trust and transaction costs. *Information Systems Journal*, 15(4), 321-341.
- Chahal, H., & Kumari, N. (2010). Development of multidimensional scale for healthcare service quality (HCSQ) in Indian context. *Journal of Indian Business Research*, 2(4), 230-255.
- Chalik, F.R., & Faturohman, T. (2022). Customer satisfaction of e-wallet user: an adoption of information system success model. *International Symposia in Economic Theory and Econometrics*, 30, 61–83, doi:10.1108/S1571- 038620220000030005
- Chellappa, R. K., & Pavlou, P. A. (2002). Perceived information security, financial liability and consumer trust in electronic commerce transactions. *Logistics Information Management*, 15(5/6), 358-368.

- Chien, S. E., Chu, L., Lee, H. H., Yang, C. C., Lin, F. H., Yang, P. L., ... & Yeh, S. L. (2019). Age difference in perceived ease of use, curiosity, and implicit negative attitude toward robots. *ACM Transactions on Human-Robot Interaction (THRI)*, 8(2), 1-19.
- Dandis, A. O., Wright, L. T., Wallace-Williams, D. M., Mukattash, I., Al Haj Eid, M., & Cai, H. (2021). Enhancing consumers' self-reported loyalty intentions in Islamic Banks: The relationship between service quality and the mediating role of customer satisfaction. *Cogent Business & Management*, 8(1), 1892256.
- Davis, F.D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS Quarterly*, 13(3), 319-340, <https://doi.org/10.230>
- Delafrooz, N., L. H. Paim., & A. Khabibi. 2011. Understanding consumer's internet purchase intention in Malaysia Afr. Journal Business Management. 5 (3), 2837–2846.
- Deraz, H., & Iddris, F. (2019). Customers satisfaction in Internet banking: A Review (2008–2017). In *17th International Conference e-Society 2019 (ES 2019)*, Utrecht, The Netherlands, April 11-13, 2019 (pp. 3-13). IADIS Press.
- Eastlick, M. A., Lotz, S. L., & Warrington, P. (2006). Understanding online B-to-C relationships: An integrated model of privacy concerns, trust, and commitment. *Journal of business research*, 59(8), 877-886.
- Faisal, M. M., & Iqbal, S. (2023). Exploring the Relationship between Green Human Resource Management and Green Creativity: The Moderating Influence of Green Behavioral Intention. *Pakistan Journal of Humanities and Social Sciences*, 11(1), 426-439. <https://doi.org/10.52131/pjhss.2023.1101.0362>
- Flavian, C., Guinaliu, M., & Gurrea, R. (2006). The role played by perceived usability, satisfaction and consumer trust on website loyalty. *Information & management*, 43(1), 1-14.
- Goel, A., & Yang, N. (2015). An assessment of service quality and resulting customer satisfaction in Pakistan International Airlines: Findings from foreigners and overseas Pakistani customers. *International Journal of Quality and Reliability Management*, 32(5), 486–502.
- Hawamleh, A. M. A., Alorfi, A. S. M., Al-Gasawneh, J. A., & Al-Rawashdeh, G. (2020). Cyber security and ethical hacking: The importance of protecting user data. *Solid State Technology*, 63(5), 7894-7899.
- Hayat, A., Ali, H., & Mehmood, S. (2022). An Examination of CSR's role in Fostering Organizational Commitment and Employee Performance. *Journal of Business and Environmental Management*, 1(1), 63-78. <https://doi.org/10.59075/jbem.v1i1.151>
- Hayyat, A., Khan, H. A., Shafiq, M. A., Rehman, D. Z.- ur., & Ziaullah, D. M. (2023). Does Employee's Green Commitments and Green Attitude Mediate the Relationship of Green HRM Practices and Pro-Environmental Behaviour: Evidence from TEVT Sector Southern Punjab, Pakistan . *Journal of Social Sciences Review*, 3(2), 190–210. <https://doi.org/10.54183/jssr.v3i2.243>.
- Iqbal, K., Shafiq, M. A., Singh, S., & Afzal, M. K. (2023). Impact of Opioid Use Disorder (OUD) on Employee Productivity: An Empirical Investigation. *International Journal of Business Intelligence and Big Data Analytics*, 6(1), 23-30. Retrieved from <https://research.tensorgate.org/index.php/IJBIBDA/article/view/10>
- Jham, V. (2016). Customer satisfaction with internet banking: exploring the mediating role of trust. *Journal of emerging trends in Economics and Management Sciences*, 7(2), 75-87.
- Kousar, T. ., & Shafiq, M. A. . (2023). Impact of Bank Specific Factors on Credit Risk: Evidence from Islamic and Conventional Banks of Pakistan. *Pakistan Journal of*

- Humanities and Social Sciences*, 11(1), 580–592.
<https://doi.org/10.52131/pjhss.2023.1101.0375>
- Kumar, N. ., & Khan, F. A. . (2023). Corporate Social Responsibility and Brand Loyalty in Punjab’s Banking Sector: Exploring the Mediating Role of Corporate Branding. *Pakistan Journal of Humanities and Social Sciences*, 11(2), 867–878. <https://doi.org/10.52131/pjhss.2023.1102.0397>
 - Li, F., Lu, H., Hou, M., Cui, K., & Darbandi, M. (2021). Customer satisfaction with bank services: The role of cloud services, security, e-learning and service quality. *Technology in Society*, 64(5), 101487.
 - Li, F., Lu, H., Hou, M., Cui, K., & Darbandi, M. (2021). Customer satisfaction with bank services: The role of cloud services, security, e-learning and service quality. *Technology in Society*, 64, 101487.
 - Liu, X., He, M., Gao, F., & Xie, P. (2008). An empirical study of online shopping customer satisfaction in China: a holistic perspective. *International Journal of Retail & Distribution Management*, 36(11).
 - Majumdar, S., & Pujari, V. (2022). Exploring usage of mobile banking apps in the Pakistan: a categorical regression analysis. *Journal of Financial Services Marketing*, 27(3), 177-189.
 - Mastoi, M. A. S. (2022). An Analysis of Social Media Marketing in Developing Consumer Brand Engagement and Repurchase Intention Evidence from Pakistan. *Journal of Business Management Studies-JBMS*, 1(03), 35-47.
 - Muhammad Aqib Shafiq, Muhammad Ziaullah, Mohsin Siddique, Ahmed Bilal, & Muhammad Ramzan. (2023). Unveiling the Sustainable Path: Exploring the Nexus of Green Marketing, Service Quality, Brand Reputation, and Their Impact on Brand Trust and Purchase Decisions. *International Journal of Social Science & Entrepreneurship*, 3(2), 654–676. Retrieved from <https://ijsse.salmaedusociety.com/index.php/ijsse/article/view/186>
 - Muhtasim, D. A., Tan, S. Y., Hassan, M. A., Pavel, M. I., & Susmit, S. (2022). Customer satisfaction with digital wallet services: An analysis of security factors. *Int. J. Adv. Comput. Sci. Appl*, 13, 195-206.
 - Nitecki, D. A., & Hernon, P. (2000). Measuring service quality at Yale University’s libraries. *The Journal of Academic Librarianship*, 26(4), 259-273.
 - No, E. & Kim, J.K. (2014). Determinants of the adoption for travel information on smartphone. *International Journal of Tourism Research*, 16(6), 534-545, doi: 10.1002/jtr.1945
 - Nosheen,k. & Danya, A. (2022). An Analysis of Integration Management in Developing Project Performance-Evidence from Pakistan. *Journal of Economics, Management & Business Administration*, 1(2), 1-14. <https://doi.org/10.59075/jemba.v1i2.115>
 - Palumian, Y., Jayanti, S.C.K., Indriyani, R. & Tarigan, Z.J.H. (2021). Technology acceptance model for online cinema ticketing among moviegoers in java island Indonesia: an empirical study on tix id application. *IOP Conf. Series: Materials Science and Engineering*, 1010, 012037, doi:10.1088/1757-899X/1010/1/012037
 - Parveen, S., e Ali, M. S., & Adeem, M. A. (2020). The Determinants of Demand for Money: Empirical Evidence from Some Selected Developing Countries. *Journal of Contemporary Macroeconomic Issues*, 1(2), 20-34.
 - Phan, A.C., Nguyen, H.T., & Pham, T.X.T. (2021). Relationship between service recovery, customer satisfaction and customer loyalty: Empirical evidence from e-retailing. *Uncertain Supply Chain Management*, 9(1) 1–10, DOI: 10.5267/j.uscm.2020.12.007

- Pooya, A., Abed Khorasani, M., & Gholamian Ghouzhd, S. (2020). Investigating the effect of perceived quality of self-service banking on customer satisfaction. *International Journal of Islamic and Middle Eastern Finance and Management*, 13(2), 263-280.
- Ramanathan, U., Subramanian, N., & Parrott, G. (2017). Role of social media in retail network operations and marketing to enhance customer satisfaction. *International Journal of Operations & Production Management*, 37(1), 105-123, DOI 10.1108/IJOPM-03-2015-0153
- Ramli, N. B., Fun, C. S., & Idris, F. (2009). Kajian Kepuasan Pelanggan Terhadap Perkhidmatan Perpustakaan Universiti Awam di Malaysia. *Jurnal Pengurusan*.
- Rauniar, R., Rawski, G., & Johnson, B. (2014). Technology acceptance model (TAM) and social media usage: an empirical study on Facebook. *Journal of Enterprise Information Management*, 27(1), 6-30, Doi 10.1108/JEIM-04-2012-0011
- Riaz, Z., Shafiq, M. A., Gillani, S. H. A., Yasin, N., & Kanwal, H. (2023). The Impact of Perception of Justice on Tax Compliance Behavior through the Mediating Role of Social Support: An Empirical Study in Pakistan. *Journal of Social Sciences Review*, 3(1), 918–931. <https://doi.org/10.54183/jssr.v3i1.304>
- Roshana G., Hussain, M., & Javaid, M. Q. (2023). Influence of Social Media Marketing in Development of Customer Trust and Satisfaction through the Moderating Role of Electronic Word of Mouth. *Journal of Social Sciences Review*, 3(1), 623–638. <https://doi.org/10.54183/jssr.v3i1.186>.
- Shafiq, M. A., Khan, M. M. A., Ali, M. S., & Shams, T. (2023). An Assessment of Social Media Marketing's Influence on Brand Loyalty, Through the Moderating Role of Brand Reputation. *Journal of Peace, Development and Communication*, 07(01), 172–194. <https://doi.org/10.36968/JPDC-V07-I01-15>.
- Sibte Ali, M., Raza, S. M. F., & Abidin, S. Z. (2018). Population, poverty and economic development nexus: Empirical study of some selected developing countries. *Pakistan Journal of Humanities and social sciences*. 6(4). 458-476.
- Sibte-e-Ali, M., Chaudhary, I. S., & Farooq, F. (2018). Impact of Human and Social Capital on Economic Development in Pakistan: Empirical Evidence from Primary Data Analysis. *Journal of Accounting and Finance in Emerging Economies*, 4(1), 39-46.
- Sibte-e-Ali, M., Shah, S. Z. A., Mazhar, F., Khan, I. H., & Parveen, S. (2021). Optimal Government Size and Economic Growth. *International Journal of Management (IJM)*, 12(12).
- Singh, N., Sinha, N., & Liebana-Cabanillas, F.J. (2020). Determining factors in the adoption and recommendation of mobile wallet services in India: analysis of the effect of innovativeness, stress to use and social influence. *International Journal of Information Management*, 50, 191-205, DOI: 10.1016/j.ijinfomgt.2019.05.022.
- Sleimi, M., & Musleh, M. (2020). E-Banking services quality and customer loyalty: The moderating effect of customer service satisfaction: Empirical evidence from the Pakistan banking sector. *Management science letters*. Doi: DOI:[10.5267/j.msl.2020.6.027](https://doi.org/10.5267/j.msl.2020.6.027)
- Suh, B., & Han, I. (2003). The impact of customer trust and perception of security control on the acceptance of electronic commerce. *International Journal of electronic commerce*, 7(3), 135-161.
- Sulaiman, S. M., Muhammad, M. A., Muhammad, A. D., & Sabiu, T. T. (2021). Mediating role of customer satisfaction between service quality and customer loyalty with Non-Interest bank in Nigeria. *International Journal of Islamic Economics and Finance (IJIEF)*, 4(1), 1-30.

- Taqi, M., e Ali, M. S., Parveen, S., Babar, M., & Khan, I. M. (2021). An analysis of Human Development Index and Economic Growth. A Case Study of Pakistan. *iRASD Journal of Economics*, 3(3), 261-271.
- Tarigan, Z.J.H., Basuki, R., & Siagian, H. (2020). The impact of information technology quality on electronic customer satisfaction in movie industry. *International Journal of Data and Network Science*, 4(3), 263-270
- Tarigan, Z.J.H., Jonathan, M., Siagian, H. & Basana, S.R. (2022). The effect of e-WOM through intention to use technology and social media community for mobile payments during the COVID-19. *International Journal of Data and Network Science*, 6(2), 563-572, DOI: 10.5267/j.ijdns.2021.11.008
- Weerasinghe, S. & Hindagolla, M.C.B. (2018). Technology acceptance model and social network sites (SNS): a selected review of literature. *Global Knowledge, Memory and Communication*, 67(3), 142-153, DOI 10.1108/GKMC-09-2017- 0079
- Yu, Y., Li, X., & Jai, T.-M. (2017). The impact of green experience on customer satisfaction: evidence from TripAdvisor. *International Journal of Contemporary Hospitality Management*, 29(5), 1340-1361, DOI 10.1108/IJCHM-07-2015-0371
- Zouari, G., & Abdelhedi, M. (2021). Customer satisfaction in the digital era: evidence from Islamic banking. *Journal of Innovation and Entrepreneurship*, 10(1), 1-18.