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EVALUATING E-BANKING SERVICE QUALITY AND CUSTOMER SATISFACTION: A COMPARATIVE STUDY OF PUBLIC AND PRIVATE SECTOR BANKS WITH MEDIATING INSIGHTS

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ABSTRACT

Purpose of the study
The aim of this study is to explore how service quality impacts customer satisfaction, specifically in the realm of online banking services offered by both public and private financial entities. It attempts to explain the importance of buyer sentiment as a pivotal factor influencing the connection between perceived threats faith and customer satisfaction. Through a comprehensive analysis of these interrelations, this study aspires to pinpoint the critical determinants that affect customers' experiences and satisfaction levels within the realm of online banking. The outcomes of this research will furnish essential insights for banking institutions to refine their digital service methodologies, augment customer trust and mitigate perceived risks, thereby ultimately facilitating enhanced customer engagement and a competitive edge within the digital banking sector.

Design/ Methodology:
A meticulously designed structured questionnaire was employed to execute the survey systematically. Data acquisition occurred through both offline and online modalities, with digital responses obtained via Google Forms. Participants were chosen utilising a blend of random sampling and convenience sampling methodologies to guarantee sufficient representation. Following the processes of data screening and validation, a total of 237 responses were deemed suitable for analytical purposes

Findings:
The research ascertained that the quality of service exerts a substantial effect on customer satisfaction within the domain of online banking. The disposition of customers serves as a mediating factor in the interplay among perceived risk, trust and overall satisfaction. Private sector banking institutions exhibited marginally elevated levels of customer satisfaction relative to their public sector counterparts, thereby underscoring the imperative for enhanced digital service quality in public banking entities.

Limitations:
The research is confined to four specifically chosen financial institutions and a sample cohort comprising 237 individuals, which may not adequately reflect the extensive demographic of online banking clientele throughout India.

Originality Value:
This research provides novel perspectives by investigating the intermediary function of customer attitudes in the context of perceived risk, trust and satisfaction within online banking environments. Additionally, it adds important insights by looking at both public and private banks, which helps improve strategies in digital systems.

Paper Type*: Research Paper*

KEY WORDS: *Online banking, service quality, customer satisfaction, customer attitude, public and private sector banks etc..,*

1. INTRODUCTION

The swift evolution of digital technology has significantly altered the banking industry, resulting in the extensive integration of online banking services (Joshi, 2023). In today's competitive financial environment, banking institutions are endeavouring to augment customer satisfaction by providing efficient, secure and user-centric digital platforms (Lolemo & Padya, 2025). Online banking facilitates customers in executing transactions,

retrieving account information and accessing various services without the necessity of visiting physical branches (Joshi, 2023)(Thapa, 2023). Nevertheless, the calibre of these services is pivotal in influencing customer perceptions and levels of satisfaction.

The quality of service in online banking comprises multiple dimensions, such as reliability, responsiveness, security, ease of use and personalisation (Prasadh & Arun, 2019). When these elements correspond with customer expectations, they yield a favourable contribution to satisfaction and loyalty (Lolemo & Padya, 2025). However, apprehensions such as perceived risk and trust issues, particularly concerning data privacy, transaction security and service dependability, accompany online banking (Ul Haq & Awan, 2020). These apprehensions can shape customer attitudes, which subsequently impact overall satisfaction (Ifedi et al., 2024). Comprehending the intricate interplay among service quality, perceived risk, trust and customer attitude is essential for banking institutions aspiring to enhance their online services (Adolph, 2023)(Hartanti & Kurniawan, 2025). Furthermore, conducting a comparative analysis of these factors across public and private sector banks provides valuable perspectives on sector-specific advantages and areas necessitating enhancement. This investigation seeks to evaluate the influence of service quality on customer satisfaction in the realm of online banking and scrutinise the mediating effects of customer attitude on perceived risk, trust and satisfaction. By delving into these interrelations within both public and private sector banks, the research enriches the understanding of digital banking behaviours and underpins strategic advancements in service delivery.

2. REVIEW OF LITERATURE

2.1. SERVICE QUALITY

Service quality can be defined as the comprehensive evaluation of the extent to which a particular service fulfils or surpasses the expectations held by customers, leading to a nuanced understanding of consumer satisfaction (Subedi, B., & Dangol, 2022). Within the specific framework of online banking, the significance of service quality is profoundly critical, as it serves to substantially impact various facets of customer satisfaction and the level of trust customers place in the service, as well as the likelihood of ongoing usage of said service (Arora & Banerji, 2024). This concept encompasses a multitude of dimensions, including but not limited to: reliability, responsiveness, assurance, empathy and tangibility, which are meticulously detailed within the widely recognised SERVQUAL model (Haider et al., 2024)(Saboo et al., 2025)(Chanu & Singh, 2022). More precisely, the qualities of online banking service are marked by elements like user-friendliness, security in transactions, availability of systems, accuracy of the information provided and the promptness of delivering services (Subedi, B., & Dangol, 2022)(Bashir et al., 2023). Online banking services that are deemed to be of high quality are instrumental in providing a seamless, secure and user-centric experience for customers, which is of paramount importance in a digital landscape where direct physical interaction is frequently limited (Nguyen, 2025)(Alafeshat & Alola, 2018). As customers increasingly depend on digital platforms to conduct their financial transactions, the necessity of maintaining an exceptional level of service quality emerges as a crucial differentiator among competing banks (Rupal & Singh, 2023)(Nguyen, 2025). This scholarly investigation seeks to delve into the ways in which service quality has a direct impact on customer satisfaction, as well as how it indirectly shapes customer attitudes, fosters trust and affects perceived risk, all of which collectively influence the overall experience encountered within the realm of online banking.

2.2. CUSTOMER ATTITUDE

Customer attitude encompasses an individual's comprehensive evaluation, complex feelings and behavioural tendencies that are directed toward a specific product, service or brand, thereby illustrating a multidimensional construct that significantly influences consumer behaviour (Shanmugam & Chandran, 2022)(Redda, 2023). In the specific context of online banking, customer attitude serves as a reflection of how users perceive and subsequently respond to the array of digital banking services available to them, which is profoundly shaped by their prior experiences, their anticipatory expectations and the level of trust they have cultivated in the banking system they are engaging with (Shanmugam & Chandran, 2022)(Nshimiyimana, 2020). A positive attitude, characterised by customers feeling a sense of confidence, security and overall satisfaction with their online banking experiences (Chanu & Singh, 2022), inherently increases the likelihood of their continued usage of these services and fosters a sense of loyalty that is crucial for the institution's long-term success (Gazi et al., 2025). Conversely, negative attitudes may arise from a variety of factors, including perceived risks associated with online transactions (Bashir et al., 2023), inadequate service quality or a pronounced lack of trust in the digital banking platform, all of which can lead to significant dissatisfaction and a marked reduction in user engagement with the service (Hammoud et al., 2018). Within the framework of this study, attitude assumes a pivotal mediating role by effectively bridging the intricate relationship that exists between perceived risk, trust and customer satisfaction, thus illuminating the dynamics that influence consumer behaviour in online banking (Moon et al., 2024). A comprehensive understanding of customer attitude is instrumental for banks, as it enables them to tailor their digital services in a

manner that aligns with users' expectations (Alkhaibari et al., 2023), minimises their concerns regarding security and service quality and ultimately fosters a more trusting and satisfactory experience for all stakeholders involved (Sindhu, 2022). Consequently, the enhancement of customer attitude emerges as a critical endeavour for the establishment and maintenance of long-term relationships within the increasingly competitive landscape of online banking services.

2.3 CUSTOMER SATISFACTION

Customer satisfaction represents the extent to which a customer's anticipations are fulfilled or surpassed by the goods or services rendered (Alkhaibari et al., 2023)(Moon et al., 2024). In the realm of online banking, it signifies the level of customer gratification with the digital offerings provided by financial institutions, encompassing aspects such as accessibility, efficiency, security, functionality and the overall user experience (Alkhaibari et al., 2023). Elevated levels of satisfaction suggest that customers perceive online banking as convenient, dependable and trustworthy, which fosters increased utilisation, loyalty and favourable referrals (Shanmugam & Chandran, 2022)(Nguyen, 2025). It functions as a critical performance metric for banking institutions, given that satisfied customers are more inclined to persist in utilising the platform and recommending it to their peers (Gazi et al., 2025). In this research endeavour, customer satisfaction functions as the dependent variable, shaped by variables such as service quality, perceived risk, trust and customer disposition (Raj & Bansal, 2019)(Ahmed et al., 2020). Grasping the elements that drive satisfaction empowers banks—across both public and private sectors—to enhance their digital service strategies and cultivate a more user-centric experience, ultimately fostering more robust customer relationships and a competitive edge in the marketplace.

2.4. PERCEIVED RISK

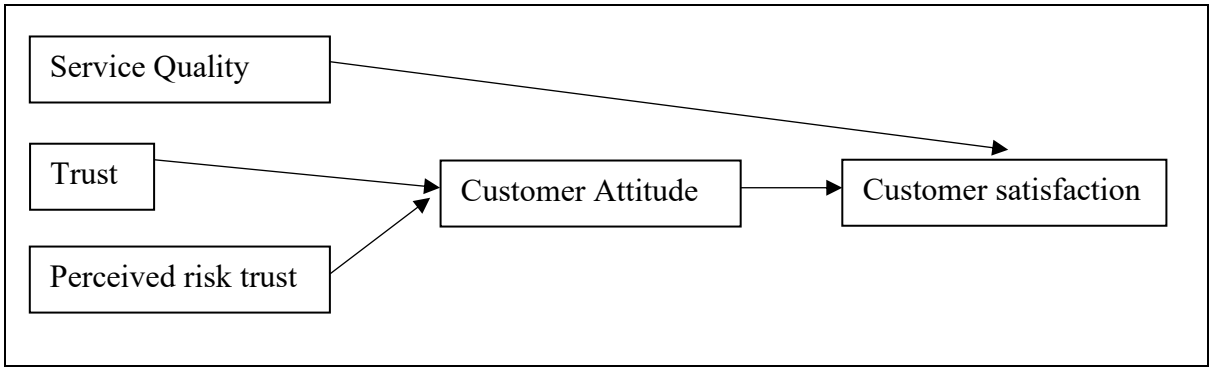
Perceived risk is defined as an individual's subjective assessment regarding the potential adverse outcomes associated with the use of a product or service(Angusamy et al., 2022). Within the context of online banking, perceived risk encompasses apprehensions pertaining to financial loss, breaches of privacy, identity theft, transactional inaccuracies and systemic failures (Kaur & Kiran, 2015). Such risks may engender hesitation or trepidation among users, thereby influencing their propensity to adopt and persist in the use of online banking services (Mohapatra et al., 2024). In contrast to objective risk, perceived risk is predicated on personal beliefs and emotional responses, which may not always correspond with actual threats (Singh, 2019). This construct is instrumental in shaping customer trust and attitudes (M. A. Khan & Alhumoudi, 2022). An elevated level of perceived risk frequently results in a detrimental attitude, diminished trust and decreased customer satisfaction (Chandra, 2022). In the present study, perceived risk is analysed as a pivotal influencing factor that, through the mediating role of customer attitudes, impacts overall satisfaction with online banking services. Recognising and mitigating perceived risks can assist financial institutions in cultivating trust and fostering enhanced customer experiences in the realm of digital banking.

2.5. TRUST

Trust can be articulated as the deep-seated conviction that a consumer harbours regarding the dependability, ethical standards and safety of a designated service provider, which incorporates a diverse spectrum of elements that shape their evaluation framework (Osman et al., 2015)(F. N. Khan et al., 2023). Within the specialised domain of online banking, trust is exemplified by the steadfast assurance that clients invest in a financial institution's ability to diligently protect their confidential personal and financial data, carry out transactions with flawless precision and provide services that can be classified as consistently reliable and trustworthy (Ayinaddis et al., 2023). Trust functions as a critical element in the alleviation of ambiguity and the reduction of perceived risk, especially in a digital environment where the lack of direct interpersonal interactions introduces further complications for customer confidence and involvement (Raza et al., 2020)(Sleimi et al., 2020). An enhanced degree of trust among clients invariably cultivates a parallel augmentation in their assurance, promotes affirmative dispositions towards the banking services available and improves overall satisfaction with the online banking experience (Khatoon et al., 2020)(Ahmed et al., 2020). Conversely, a lack of trust may result in a substantial hesitation on the part of consumers to utilise online banking services, regardless of the technological efficiencies that those services may offer (Raj & Bansal, 2019). Within the framework of this investigation, trust is examined as an essential determinant of customer satisfaction (Hammoud et al., 2018), with customer attitude serving as a mediating variable that shapes this association (Khatoon et al., 2020)(Nshimiyimana, 2020). Consequently, efforts to establish and maintain trust are of utmost significance for banks (Redda, 2023), as they seek to ensure prolonged digital engagement, nurture customer loyalty and strengthen relationships with their client base in the highly competitive sphere of the online banking industry (Raj & Bansal, 2019).

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3. RESEARCH FRAMEWORK



4. RESEARCH METHODOLOGY

4.1. Research Context

The present investigation is situated within the framework of India's dynamic digital banking landscape, wherein both public and private sector banking institutions endeavour to augment customer experience via online platforms. In light of the growing dependence on digital channels, comprehending the determinants that impact customer satisfaction has emerged as a paramount concern. This analysis concentrates on pivotal variables such as service quality, perceived risk and trust, while also exploring the mediating role of customer attitude in their association with customer satisfaction. Through a comparative examination of public and private sector banks, the study offers enhanced insights into sector-specific challenges and prospects, with the intent of assisting banks in refining their online services and cultivating more robust customer relationships.

4.2. Data Collection

The data were meticulously gathered through the administration of a rigorously structured questionnaire that was disseminated via both online platforms, specifically Google Forms and traditional offline methods that ensured comprehensive reach. Respondents for this study were strategically selected, employing a combination of random sampling techniques alongside convenience sampling methodologies, which facilitated a diverse and representative participant pool. Ultimately, a total of **237** valid and usable responses were successfully obtained from a sample of customers affiliated with four prominent banking institutions, namely Canara Bank (45 responses), State Bank of India (SBI) (58 resposnses), HDFC Bank (77 responses) and ICICI Bank (57 responses), which were subsequently used for a thorough analytical evaluation.

4.3. Measurement of scale items

The scholarly investigation utilised an intricately formulated and methodically organised questionnaire, which integrated a diverse array of items assessed through a thorough 5-point Likert scale, meticulously crafted to ascertain respondents' feelings and viewpoints, with the scale specifying the subsequent responses: 1–strongly disagree, 2–disagree, 3–neutral, 4–agree and 5–strongly agree, thereby enabling a detailed comprehension of the participants' viewpoints.

4.4. Objectives of the study

1. To analyse the influence of service quality on customer satisfaction towards online banking services in public and private sector banks.
2. To analyse the mediating effect of customer attitude between perceived risk and trust with customers satisfaction towards online banking services in public and private sector banks.

4.6. Hypothesis for the study

1. Regression test

H0 – There is no significant impact of service quality on customer satisfaction towards online banking services in public and private sector banks.
H1 – There is a significant impact of service quality on customer satisfaction towards online banking services in public and private sector banks.

2. Independent sample T test

H0 – There is no significant difference of service quality between customers of private sector banks and public sector banks

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H1 – There is a significant association between parental pressure and youth sports participation.

3. Mediation Analysis (Sobel's test)
H0 – Customer attitudes does not significantly mediate between perceived risk & trust and customers satisfaction towards online banking services in public and private sector banks.
H1 – Customer attitudes significantly mediate between perceived risk & trust and customers satisfaction towards online banking services in public and private sector banks.

4. Mann Whitney U test
H0 – There is no significant difference of customer satisfaction between customers of private sector banks and public sector banks
H1 – There is a significant difference of customer satisfaction between customers of private sector banks and public sector banks

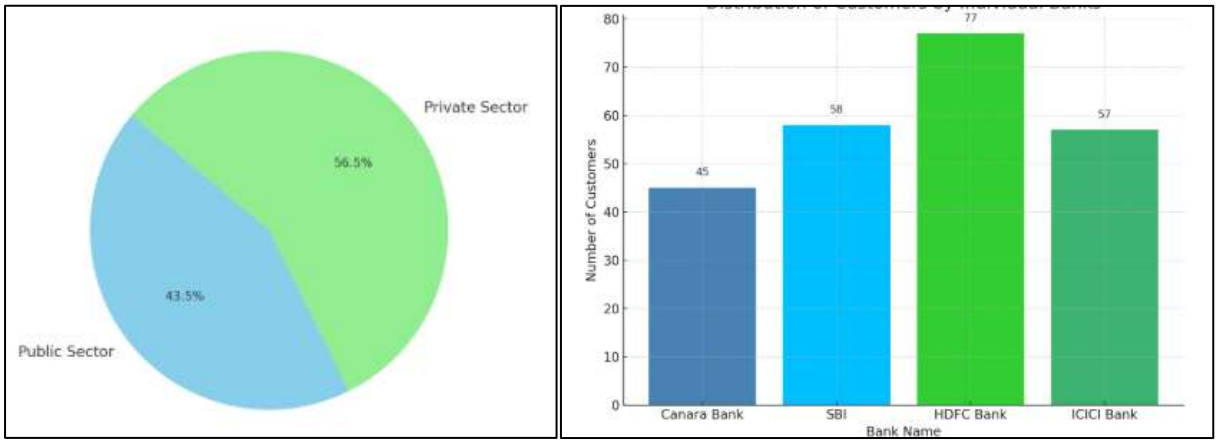
5. DATA ANALYSIS AND INTERPREATATION

This section presents the findings from our thorough analysis of the 237 customer's data collected by the researcher. The objective was to analyze the influence of service quality on customer satisfaction towards online banking services in public and private sector banks. And also to analyse the mediating effect of customer attitude between perceived risk and trust with customers satisfaction towards online banking services in public and private sector banks. The data was processed and analysed using statistical methodologies like descriptive statistics, Regression test, Independent sample T test, Sobel's test and Mann Whitney U test to identify precise variations and impact between perceived risk & trust, customer attitude, service quality and customer satisfaction. The software tools used for analysis were SPSS 25 and Microsoft Excel. The tables and charts in this study are used to demonstrate the findings.

Table no 5.1: Distribution of customers across type of Banks

		N	Total Frequency	Percent	Cumulative Percent
Public sector	Canara Bank	45	103	43.5	43.5
	SBI	58			
Private sector	HDFC Bank	77	134	56.5	100.0
	ICICI Bank	57			
Total			237	100.0	

Chart no 5.1: Distribution of customers across type of Banks



Interpretation
The above table and charts provides an overview of the distribution of respondents based on their association with public and private sector banks. Out of the total 237 customers surveyed, 103 respondents (43.5%) reported using online banking services provided by public sector banks, specifically Canara Bank and the State Bank of India (SBI), with 45 and 58 users respectively. On the other hand, 134 respondents (56.5%) were affiliated with private sector banks, namely HDFC Bank and ICICI Bank, with 77 and 57 users respectively. This distribution indicates a relatively higher inclination among respondents towards private sector banks when it comes to online banking services. The slightly larger representation of private bank customers may reflect perceptions of better service

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quality, user experience or technological adoption in private sector online banking platforms. This foundational distribution is essential for subsequent comparative analyses in the study, particularly in understanding how service quality and satisfaction vary across banking sectors.

Objectives 1: To analyse the influence of service quality on customer satisfaction towards online banking services in public and private sector banks.

Multiple Regression test is employed to know the impact of service quality towards online banking service on customer satisfaction and independent sample t test is conducted to the difference in service quality between customer of private and public banks

Table no 5.2: Distribution of Descriptive Statistics of response towards the statement of Customer satisfaction

Statements	N	Min	Max	Mean	Std. Deviation
I am satisfied with the convenience provided by online banking.	237	1.00	5.00	4.0591	.92785
Online banking meets my expectations in terms of performance.	237	1.00	5.00	4.0802	.84742
I am happy with the overall quality of services offered through online banking.	237	1.00	5.00	4.2405	.86183
I would recommend my bank's online banking services to others.	237	1.00	5.00	3.9494	.98159
Online banking has increased my satisfaction with my bank's overall services.	237	1.00	5.00	3.9578	.90098

Interpretation

The above table presents the descriptive statistics of customer responses regarding their satisfaction with online banking services. The data reflects a generally high level of satisfaction among the respondents (N = 237), with all mean scores above the neutral point of 3 on a 5-point Likert scale. Notably, the statement *"I am happy with the overall quality of services offered through online banking"* recorded the highest mean score of 4.24, indicating that customers perceive the overall quality of online banking services positively. Similarly, satisfaction with performance (*M = 4.08*) and convenience (*M = 4.06*) received relatively high mean values, suggesting that the functionality and accessibility of online banking are well-appreciated. However, the mean scores for the statements *"I would recommend my bank's online banking services to others"* (M = 3.95) and *"Online banking has increased my satisfaction with my bank's overall services"* (M = 3.96) were marginally lower, though still positive. These findings may point to slightly lower levels of customer advocacy and the perceived overall impact of online banking on total service satisfaction. The standard deviations, ranging between 0.85 and 0.98, indicate moderate variation in responses, reflecting a range of user experiences. Overall, the results suggest that while online banking services are broadly meeting customer expectations, there is room for improvement in fostering deeper customer loyalty and stronger word-of-mouth advocacy.

Table no 5.3: Distribution of Descriptive Statistics of response towards the statement of Service Quality

	Statements	N	Min	Max	Mean	Std. Deviation
S1	The online banking platform provides accurate and timely services.	237	1.00	5.00	4.2405	.93720
S2	I find the layout and design of the online banking system easy to navigate.	237	1.00	5.00	4.0380	.90352
S3	My bank responds promptly to online queries or complaints.	237	1.00	5.00	3.9916	.92970
S4	Online banking services are consistently available without frequent downtimes.	237	1.00	5.00	4.0675	.88519
S5	I feel secure and confident while transacting through online banking services.	237	1.00	5.00	4.0802	.94213

Interpretation:

The above table provides insights into customer perceptions of service quality in the context of online banking. The responses indicate a generally favourable view, with mean scores for all statements above 3.9, suggesting that most customers agree or strongly agree with the positive aspects of service quality. The highest-rated statement,

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"The online banking platform provides accurate and timely services" (M = 4.24, SD = .937), highlights that users value the efficiency and reliability of the services offered. Similarly, a high mean score was observed for *"I feel secure and confident while transacting through online banking services"* (M = 4.08), underscoring the importance of perceived safety and trust in digital financial transactions. The consistency of service availability was also affirmed by the statement *"Online banking services are consistently available without frequent downtimes"* (M = 4.07), indicating operational reliability. While *"I find the layout and design of the online banking system easy to navigate"* (M = 4.04) and *"My bank responds promptly to online queries or complaints"* (M = 3.99) received slightly lower mean scores, they still reflect a broadly positive sentiment. The standard deviations, all below 1, suggest a moderate level of agreement among respondents. Collectively, the findings reveal that the service quality of online banking is perceived positively, especially in terms of accuracy, reliability and security, although banks may benefit from further improving responsiveness and user interface design.

Regression test

H_0 – There is no significant impact of service quality on customer satisfaction towards online banking services in public and private sector banks.

H_1 – There is a significant impact of service quality on customer satisfaction towards online banking services in public and private sector banks.

Table no 5.4: Model Summary Bivariate regression

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.580[a]	.336	.322	.51475
a. Predictors: (Constant), S5, S1, S4, S3, S2				

Table no 5.5: Result of ANOVA and F value

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	30.972	5	6.194	23.378	.000[b]
	Residual	61.207	231	.265		
	Total	92.180	236			
a. Dependent Variable: Customer satisfaction						
b. Predictors: (Constant), S5, S1, S4, S3, S2						

Table no 5.6: Results showing the Coefficients of independent variable and its significance level

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.857	.211		8.794	.000
	S1	.075	.047	.112	1.605	.110
	S2	.129	.049	.186	2.650	.009
	S3	.097	.046	.145	2.111	.036
	S4	.043	.048	.061	.893	.373
	S5	.196	.043	.296	4.576	.000
a. Dependent Variable: Customer satisfaction						

Interpretation

To examine the impact of service quality on customer satisfaction towards online banking services in public and private sector banks, a regression analysis was conducted using five indicators of service quality (S1 to S5). The model's results offer a clear picture of how different dimensions of service quality contribute to shaping customer satisfaction. As illustrated in Table 4 (Model Summary), the regression analysis yields a correlation coefficient (R) of 0.580 and an R Square of 0.336, suggesting that about 33.6% of the variation in customer satisfaction can be explained by the combined effect of the five service quality variables. The Adjusted R Square value of 0.322 further confirms the model's robustness. The standard error of the estimate (0.51475) reflects a moderate level of unexplained variance, which is reasonable for social science data.

The ANOVA results in **Table 5** reinforce the overall significance of the model ($F = 23.378$, $p < .001$), indicating that the service quality variables collectively have a statistically significant effect on customer satisfaction. Therefore, the null hypothesis (H_0) is rejected in favour of alternative hypothesis that is there is significant impact of service quality on customer satisfaction

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In **Table 6**, the coefficients for each individual service quality variable reveal the relative strength and significance of their contribution in which S5 – "I feel secure and confident while transacting through online banking services" has the strongest positive effect on customer satisfaction (β = 0.296, *p = .000*). This finding highlights the centrality of security and trust in shaping positive customer experiences in online banking environments. S2 – "I find the layout and design of the online banking system easy to navigate" is also a significant predictor (β = 0.186, *p = .009*), suggesting that usability and interface design play a crucial role in enhancing satisfaction. S3 – "My bank responds promptly to online queries or complaints" contributes moderately to satisfaction (β = 0.145, *p = .036*), pointing to the importance of responsive customer service in the digital domain. Conversely, S1 – "The online banking platform provides accurate and timely services" (*p = .110*) and S4 – "Online banking services are consistently available without frequent downtimes" (*p = .373*) did not show statistically significant effects. Although these aspects are foundational to service quality, the data suggests that customers may perceive them as basic expectations rather than satisfaction-enhancing differentiators.

Independent sample T test

H_0 – There is no significant difference of service quality between customers of private sector banks and public sector banks

H_1 – There is a significant association between parental pressure and youth sports participation.

Table no 5.7: Results of Group Statistics and Levene's Test for Equality of Variances

Group Statistics						Levene's Test for Equality of Variances	
	Type of Bank	N	Mean	Std. Deviation	Std. Error Mean	F	Sig.
Service Quality	Public sector Banks	103	3.9612	.63743	.06281	.218	.641
	Private sector Banks	134	4.1776	.66882	.05778		

Table no 5.8: Results of Independent Samples Test

		t-test for Equality of Means						
		t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
							Lower	Upper
Service Quality	Equal variances assumed	-2.520	235	.012	-.21645	.08588	-.38564	-.04725
	Equal variances not assumed	-2.536	224.421	.012	-.21645	.08534	-.38462	-.04828

Interpretation

The present analysis aimed to test the hypothesis regarding whether customers of public sector and private sector banks perceive the quality of online banking services differently. The null hypothesis (H_0) stated that there is no significant difference in service quality perceptions between the two groups, while the alternative hypothesis (H_1) posited a significant difference. As shown in Table 7, the mean score for service quality among private sector bank customers is 4.1776 (SD = 0.66882), which is notably higher than the mean score for public sector bank customers, which stands at 3.9612 (SD = 0.63743). This preliminary observation suggests that customers of private banks tend to perceive online service quality more favourably. The results of Levene's Test for Equality of Variances (F = 0.218, *p = .641*) indicate that the assumption of equal variances holds, as the significance value is greater than 0.05. Hence, the row for "Equal variances assumed" in Table 8 is used for interpretation. The t-test for equality of means shows a statistically significant difference in perceived service quality between the two groups (t(235) = -2.520, p = .012). The mean difference is -0.21645, with a 95% confidence interval ranging from -0.38564 to -0.04725, which does not include zero. This confirms that the difference is statistically meaningful. Hence the null hypothesis is rejected and the alternative hypothesis is accepted, leading to the conclusion that there is a significant difference in the perception of online banking service quality between public and private sector bank customers

Objective 2: To analyse the mediating effect of customer attitude between perceived risk and trust with customers satisfaction towards online banking services in public and private sector banks.

Mediation analysis is been conducted using Sobel's test to identify whether customer attitude mediate between perceived risk & trust and customer satisfaction. Lastly the Mann Whitney U test is employed to know the know difference of customer satisfaction between private bank and public bank.

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Table no 5.9: Distribution of Descriptive Statistics of response towards the statement of Customer Attitude, Perceived risk and Trust						
		N	Minimum	Maximum	Mean	Std. Deviation
Customer Attitude						
C1	I feel positive about using online banking services.	237	1.00	5.00	3.9789	.96308
C2	I prefer using online banking over visiting the branch.	237	1.00	5.00	4.3207	.79091
C3	Online banking improves my overall banking experience.	237	1.00	5.00	4.0591	.92785
C4	I am likely to continue using online banking in the future.	237	1.00	5.00	4.0802	.84742
C5	I consider online banking to be a smart way to manage finances.	237	1.00	5.00	4.0127	.93646
Perceived risk						
RT1	I am concerned about the privacy of my personal information while using online banking.	237	1.00	5.00	3.9789	1.04738
RT2	There is a risk of losing money due to errors or fraud in online banking.	237	1.00	5.00	3.9916	.92970
RT3	I often hesitate to complete high-value transactions via online banking	237	1.00	5.00	4.0675	.88519
Trust						
RT4	I trust my bank's online platform to handle my transactions safely.	237	1.00	5.00	4.0802	.94213
RT5	I believe my bank has the competence to protect my online financial data.	237	1.00	5.00	3.9789	.96308
RT6	I feel confident that the bank will resolve any issues related to online transactions promptly.	237	1.00	5.00	4.3207	.79091

Interpretation

The above table presents the descriptive statistics reflecting customer responses toward three important dimensions of online banking: customer attitude, perceived risk and trust. The findings reveal that customers exhibit a generally positive attitude toward online banking services. Among the statements, the highest agreement was observed for the preference to use online banking over visiting branches (Mean = 4.3207), indicating a clear shift in customer behaviour towards digital convenience. Similarly, customers expressed confidence in continuing to use online banking in the future (Mean = 4.0802) and acknowledged that it enhances their overall banking experience (Mean = 4.0591). While the attitude is favourable, concerns about perceived risk remain moderately high. Notably, respondents hesitated to perform high-value transactions online (Mean = 4.0675) and expressed concern regarding privacy and the potential for fraud (Means = 3.9789 and 3.9916 respectively). These concerns highlight the persistent sensitivity around the security of digital financial services. In contrast, the level of trust in the banks' digital infrastructure was found to be encouraging. Customers strongly agreed that their banks are capable of resolving issues promptly (Mean = 4.3207) and managing transactions safely (Mean = 4.0802), reflecting a healthy trust level in online platforms. Overall, while customers appreciate the benefits and continue to use online banking services, mitigating risk perception and reinforcing trust remain crucial for further strengthening digital adoption.

Mediation Analysis (Sobel's test)

H_0 – Customer attitudes does not significantly mediate between perceived risk & trust and customers satisfaction towards online banking services in public and private sector banks.

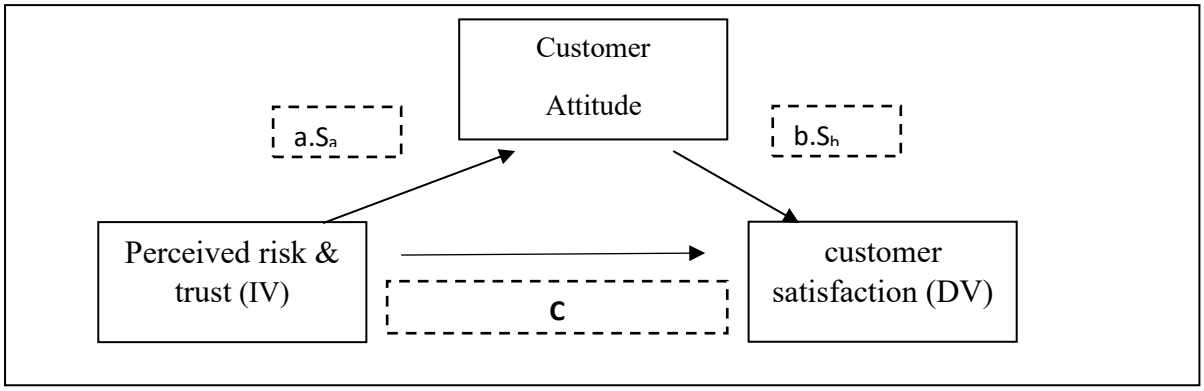
H_1 – Customer attitudes significantly mediate between perceived risk & trust and customers satisfaction towards online banking services in public and private sector banks.

Mediation is a simple linear regression extension that adds one or more variables to the regression equation. Mediating factors define how an intervention produces its result. Mediating variables are described as "the method

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by which X [independent variable] impacts Y [dependent variable]" (Hayes 2013:7). Researchers think that the independent variable (X) influences the mediator (M), who in turn influences the dependent variable (Y) in mediation analysis. In other words, it is assumed that the link between the independent and dependent variables is indirect.

In this study, the researcher examined the mediating variable as Customer attitude, the dependent variable as customer satisfaction and the independent variable as Perceived risk & trust.



The Sobel Test

Sobel (1982) suggested this basic test statistic. The Sobel test is used to investigate the hypothesis that the connection between the independent (X) and dependent (Y) variables is mediated / impacted by a third variable (Y), implying that X and Y have an indirect relationship. In other words, the Sobel test determines if including a mediator (M) in the regression analysis lowers the influence of the independent variable (X) on the dependent variable (Y) significantly (Preacher 2020). After accounting for the mediator, the hypothesis that there is no statistically significant difference between the total effect and the direct effect is tested; if a significant test statistic is obtained, entire or partial mediation may be supported (Allen 2017.As evidence for a proof of objective, conducting Sobel's test for this study consists of three steps

Step 1: A simple linear regression analysis for the effect of the independent variable (Perceived risk & trust) on the mediator (Customer Attitude). This step computes both unstandardized regression coefficient (a) and the standard error of "a" (S_a)

Table no 5.10: Coefficients from Regression analysis(a)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.128	.159		7.088	.000
	Perceived Risk & Trust	.728	.039	.776	18.846	.000
a. Dependent Variable: Customer attitude						

Interpretation

The above display the SPSS regression output. These tables display the unstandardized and standardized regression coefficients, standard errors, the t and p values and the 95% confidence interval for each analysis. And also shows that the independent variable (Perceived risk & trust) is a significant predictor of the mediating variable (Customer Attitude). ($t = 18.846$, $p < .01$).($a=0.728$ and $S_a=0.039$)

Step 2: A multiple linear regression analysis for the effect of the independent (Perceived risk & trust) and mediating (Customer Attitude) variables on the dependent variable (customer satisfaction). This step computes both unstandardized regression coefficient (b) and the standard error of b (S_b).

Table no 5.11: Coefficients from Regression analysis(b)

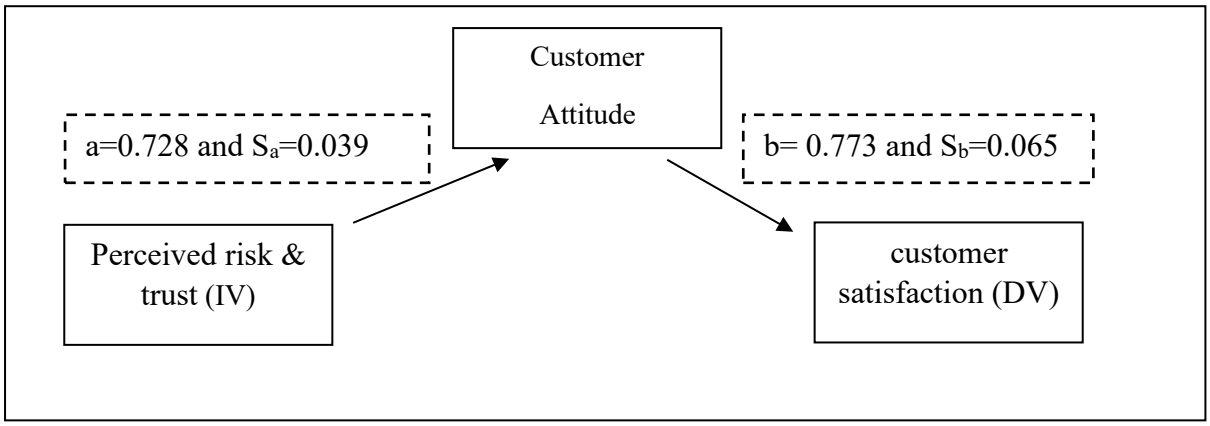
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.776	.174		4.462	.000
	Perceived Risk & Trust	.030	.061	.031	.489	.626
	Customer attitude	.773	.065	.763	11.951	.000
a. Dependent Variable: Customer satisfaction						

Interpretation

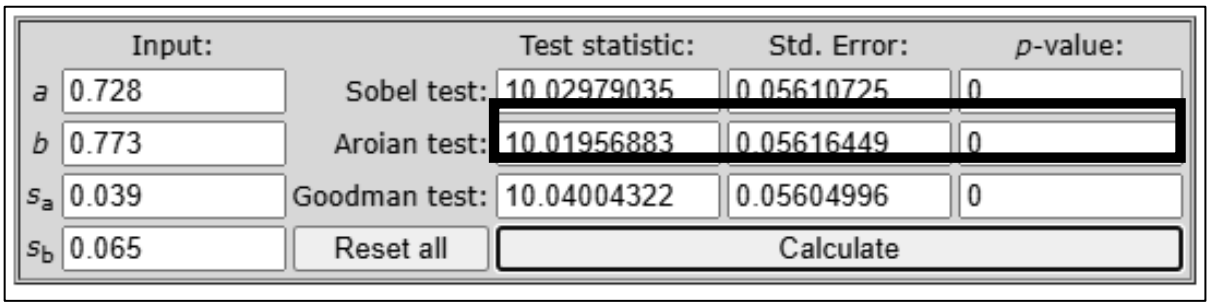
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The above table display the SPSS regression output. These tables display the unstandardized and standardized regression coefficients, standard errors, the t and p values and the 95% confidence interval for each analysis. And also shows that the independent (Perceived risk & trust) and mediating (Customer Attitude) variables is a significant predictor of the dependent variable (customer satisfaction). ($t = 11.951$, $p < .01$).(b= 0.773 and S_b=0.065)

Step 3: After confirming the two conditions for mediation are established, examining if the mediating variable is a statistically significant using the Sobel test (using the Z formula).Required both "a" and "b" unstandardized regression coefficients and their standard errors (Sa and Sb, respectively) to be substituted in formula to get Z value of Sobel's test and formula is Z value for Sobel test = z-value = $a*b$/SQRT ($b^2*s_a^2 + a^2*s_b^2$)



Though there is a formula to compute Z value for Sobel test it can be computed using online Sobel test calculator and screenshot of it are kept below



To further investigate the mediator, the Sobel test was utilized to examine if customer attitude significantly mediated the relationship between perceived risk & trust and customer satisfaction, the results confirmed that the computed Z score will be statistically significant if it falls outside ±1.96 given a two-tailed alpha of .05 and outside ±2.58 given a two-tailed alpha of .01. thus Z = 10.029 which falls outside to both of the limits and p=0.000 in which H_1 is accepted as Customer attitudes significantly mediate between perceived risk & trust and customers satisfaction towards online banking services in public and private sector banks.

Mann Whitney U test

H_0 – There is no significant difference of customer satisfaction between customers of private sector banks and public sector banks

H_1 – There is a significant difference of customer satisfaction between customers of private sector banks and public sector banks

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Table no 5.12: Table showing the results of ranks, median report and test statistics

Ranks					Median report	Test Statistics[a]			
	Type of Bank	N	Mean Rank	Sum of Ranks	Positive effects on Self-image	Mann-Whitney U	Wilcoxon W	Z	Asymp. Sig. (2-tailed)
Customer satisfaction	Public Banks	103	108.94	11220.50	4	5864.500	11220.500	-1.993	.046
	Private Banks	134	126.74	16982.50	4.2				
	Total	237			4				

Interpretation

The above table showing results of mean ranks for public sector banks (N-103, Mean rank-108.94) and private sector banks (N-134, Mean rank-126.74) along with median reports showing median value of 4 and 4.2 for positive effects on customer satisfaction for both public and private sector banks. The test statistics shows the value for Mann-Whitney u test, Wilcoxon w and Z value, this test is conducted to know the difference of customer satisfaction between customers of private sector banks and public sector banks. And to know the effect size statistic, r need to be calculated using $r = Z/\sqrt{N}$, therefore r -1.993/√237→ r = 0.12945. According to Cohen (1988) criteria 0.1 = Small Effect, 0.3 = Medium Effect and 0.5 = Large Effect. In this scenario, the effect size is small. As a result, test revealed significant difference where p value is less than the significance value, $U = 5864.5$, z = -1.993, p = .000, r = .13. Hence H1 is supported as there are significant difference of customer satisfaction between customers of private sector banks and public sector banks.

6. CONCLUSION

This investigation underscores the critical influence of service quality on customer satisfaction within online banking services, encompassing both public and private sector banking institutions. It elucidates that customer attitude serves as a pivotal mediating factor between perceived risk, trust and satisfaction, thereby accentuating the necessity of comprehending customers' perceptions and emotional responses towards digital banking. The results indicate that banking institutions should prioritise enhancing service quality by ensuring robust security measures, reliability and user-friendly interfaces to cultivate trust and mitigate perceived risks. Furthermore, promoting a favourable customer attitude can reinforce satisfaction and foster loyalty. The comparative examination of public and private banking entities yields invaluable insights for targeted enhancements, particularly in public sector banks where satisfaction metrics were notably lower. Collectively, this research enriches the existing corpus of knowledge regarding digital banking behaviour and presents practical implications for banks seeking to refine their online services, enhance customer experiences and sustain a competitive advantage in the rapidly transforming digital financial environment.

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