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The Impact of E-Banking Service Quality Dimensions and Demographic Moderators on e-Customer Satisfaction and e-Loyalty: Insights for a Personalized Future

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Abstract

This research investigates how various e-banking service quality dimensions are reliability, responsiveness, accessibility, ease of use, and security along with demographic factors influence customer satisfaction and loyalty. It underscores the critical role of service quality in shaping customer experiences, with reliability and security emerging as pivotal elements. Demographic variables such as age, gender, marital status, occupation, and income are identified as moderators in these relationships. Employing structural equation modelling (SEM), the study analyses the direct effect of service quality on satisfaction and how satisfaction mediates customer loyalty. The results demonstrate that satisfied customers are more inclined to remain loyal to e-banking platforms. These findings offer valuable insights for financial institutions to enhance their e-banking services and tailor

offerings to meet diverse customer needs. Strengthening security and simplifying usability are highlighted as significant drivers of satisfaction. Customizing marketing efforts based on demographic segments can further boost loyalty. Overall, the research provides strategic guidance for optimizing customer experiences and fostering long-term trust in e-banking services.

Keywords: e-banking services, customer loyalty, customer satisfaction, customer experiences, marketing efforts.

I.INTRODUCTION

The quick progression of innovation has essentially changed the managing an account industry, driving to the expansion of electronic managing an account (e-banking) stages. E-banking empowers clients to perform budgetary exchanges and get to managing an account administration helpfully through advanced channels. This worldview move has made benefit quality an urgent determinant of victory for banks looking for to preserve competitiveness in a progressively energetic and digitalized environment. Benefit quality in e-banking, characterized by qualities such as unwavering quality, responsiveness, security, and ease of utilize, plays an imperative part in forming client fulfilment and cultivating long-term devotion.

Customer fulfilment and loyalty are basic measurements within the e-banking industry. Fulfilled customers are more likely to believe and proceed employing a bank's administrations, subsequently upgrading client maintenance and benefit. In any case, client fulfilment and dependability are not exclusively affected by benefit quality measurements; statistic variables such as age, sex, income, education, and mechanical capability too essentially influence client discernments and behaviours within the e-banking setting. Understanding these flow is basic for banks pointing to plan custom fitted techniques that meet the assorted needs of their client base.

Despite broad inquire about on benefit quality in conventional keeping money, the interesting characteristics of e-banking require a more nuanced examination of how benefit quality dimensions' impact client fulfilment and dependability. Additionally, the exchange between statistic components and benefit quality remains an underexplored region that holds guarantee for picking up more profound experiences into client inclinations and desires.

Literature Review

Parasuraman et al., 1988 Consistency in conveying error-free and tried and true administrations remains an essential determinant of client fulfilment. Unwavering quality envelops precise exchange handling, reliable benefit conveyance, and issue determination, which are imperative for building believe in computerized platforms.

Alalwan et al., 2017 The secrecy and security of client information and budgetary exchanges are pivotal in e-banking industry. Ponders show that seen security emphatically impacts both fulfilment and dependability, especially in situations with increased cybersecurity concerns

Davis, 1989 User-friendly stages with natural route improve the client encounter. The Innovation Acknowledgment Demonstrate (TAM) proposes that ease of utilize altogether impacts client fulfilment by diminishing the seen complexity of utilizing e-banking administrations

Zeithaml et al., 2002 Provoke and productive reactions to client request, whether through robotized frameworks or human bolster, play a significant part in forming fulfilment

Chen & Cheng, 2012 Custom-made administrations that meet person client inclinations contribute to seen benefit quality and construct more grounded client connections

Herington &Weaven, 2009 The capacity to get to administrations consistently at any time and from any area may be a one of a kind advantage of e-banking. Framework downtimes and openness issues, be that as it may, can essentially degrade from the seen quality

Koksal, 2016 More youthful clients tend to adjust to computerized stages more effectively, esteeming highlights like speed and ease of utilize. Then again, more seasoned clients may prioritize security and client bolster

Amin, 2016 Investigate appears that men and ladies may see and prioritize benefit quality measurements in an unexpected way, with ladies regularly setting more prominent accentuation on security and unwavering quality

Liao et al., 2008 Clients with higher pay and instruction levels are by and large more innovatively smart, driving to higher desires for benefit quality and progressed functionalities

Riquelme& Rios, 2010 Nature with computerized advances essentially impacts fulfilment, as tech-savvy clients are more comfortable exploring complex e-banking platforms

Oliver, 1999 Client fulfilment in e-banking may be a coordinate result of seen benefit quality. Various ponders have illustrated that fulfilled clients are

more likely to display dependability behaviours, such as proceeded utilization and positive word-of-mouth proposals

Gefen, 2002 Fulfilment regularly intervenes the relationship between benefit quality and devotion. For occasion, a solid and secure stage increments fulfilment, which in turn upgrades devotion eagerly

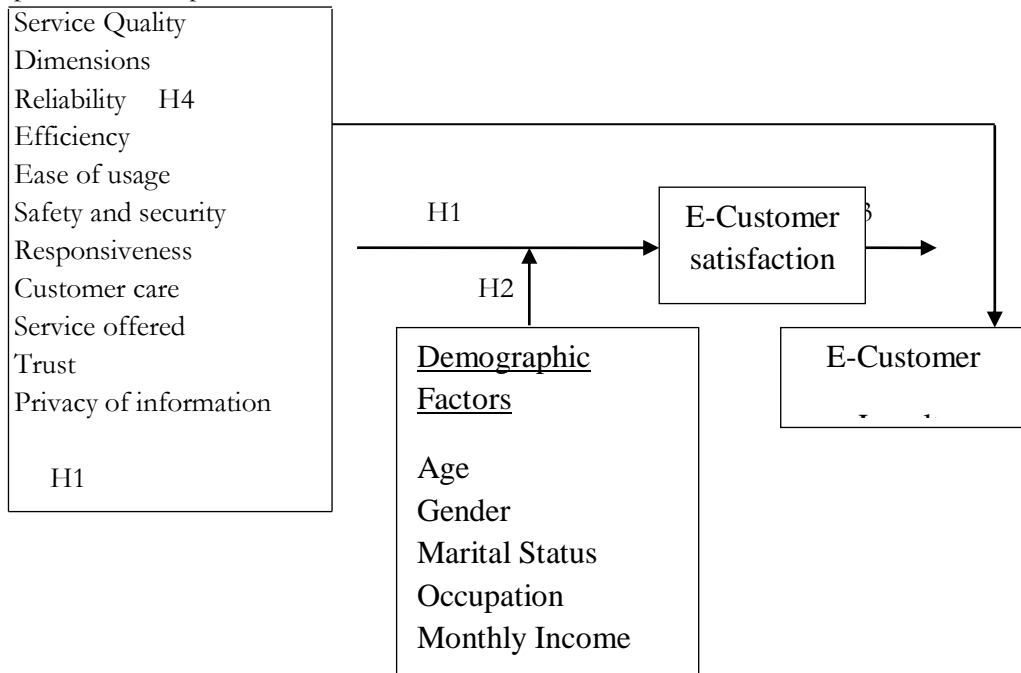
Reichheld&Schefter, 2000 Steadfast clients not as it were stay with the benefit supplier but are too less delicate to competitive offerings, contributing to long-term benefit

Research Gaps and Emerging Trends

In vast research, numerous gaps remain within the literature. there's restrained exploration of the combined impact of provider nice dimensions and demographic elements on pleasure and loyalty. additionally, as new technologies such as artificial intelligence, block chain, and biometric authentication are incorporated into e-banking, their effect on provider first-rate and client perceptions warrants in addition research

Fig 1: Conceptual Framework

Here's a detailed research design, measurement instrument, and sampling technique based on the provided conceptual framework model:



The proposed model hypothesizes that:

H1: Service quality dimensions positively influence E- customer satisfaction.

H2: Demographic factors moderate the relationship between service quality and E-customer satisfaction.

H3: Customer satisfaction positively influences E- customer loyalty.

H4: Service quality dimensions positively influence E- customer loyalty

Research Design

This study will use a quantitative, descriptive, and explanatory research design to explore how service quality, demographic factors, e-customer satisfaction, and e-customer loyalty are connected in the context of e-banking services. Data will be collected through a structured questionnaire divided into four sections. The first section focuses on key service quality factors, such as reliability, responsiveness, accessibility, ease of use, and security. Participants will rate these aspects on a 5-point Likert scale to indicate their level of agreement. The second section gathers demographic information, including age, gender, marital status, occupation, and monthly income, which serve as moderating variables. In the third section, participants will share their levels of satisfaction with e-banking services, measured as the mediating variable, using the same 5-point Likert scale. Finally, the fourth section assesses e-customer loyalty, with questions designed to understand participants' intentions to continue using and recommend the service. By combining insights from these sections, the study aims to clarify how service quality and demographic factors influence customer satisfaction and loyalty in e-banking.

Sampling Technique

The study will target customers using e-banking services in a specific region or from a specific bank, employing a stratified random sampling method to ensure diverse representation across demographic factors such as age, gender, marital status, occupation and monthly income. A samples 484 e- banking respondents were selected and data will be collected through online platforms like Google Forms, as well as physical forms distributed at bank branches, with strict adherence to ethical considerations, including informed consent and data confidentiality.

Table1 : Descriptive analysis

| Variable | Mean | Standard Deviation | Minimum | Maximum | Skewness | Kurtosis |
|----------------------|-------------|---------------------------|----------------|----------------|-----------------|-----------------|
| Reliability | 1.94 | 0.506 | 1 | 3.83 | 1.04 | 1.48 |
| Efficiency | 2.01 | 0.626 | 1 | 4.33 | 0.82 | 0.52 |
| EaseOfUsage | 1.98 | 0.511 | 1 | 4.25 | 1.05 | 2.18 |
| SafetyAndSecurity | 2.04 | 0.605 | 1 | 4.00 | 0.64 | 0.43 |
| Responsiveness | 1.96 | 0.622 | 1 | 5.00 | 0.95 | 1.29 |
| CustomerCare | 2.26 | 0.650 | 1 | 5.00 | 0.36 | 1.19 |
| ServicesOffered | 1.92 | 0.549 | 1 | 4.50 | 0.99 | 2.22 |
| Trust | 1.98 | 0.649 | 1 | 3.67 | 0.41 | -0.65 |
| PrivacyOfInformation | 1.96 | 0.559 | 1 | 3.67 | 0.54 | 0.32 |
| CustomerSatisfaction | 1.86 | 0.548 | 1 | 4.33 | 1.15 | 1.37 |
| CustomerLoyalty | 1.89 | 0.485 | 1 | 4.40 | 1.25 | 2.12 |

The table provides descriptive statistics for various customer service-related variables, showcasing their mean, standard deviation, range, skewness, and kurtosis. The mean scores vary from 1.86 (Customer Satisfaction) to 2.26 (Customer Care), reflecting generally low average ratings on the assessed scale. Standard deviations are moderate, ranging from 0.485 to 0.650, indicating some variability in the responses. All variables have a minimum value of 1, while maximum values differ, with Responsiveness reaching 5.00, suggesting a broader range of perceptions for this aspect. Skewness values range from 0.36 (Customer Care) to 1.25 (Customer Loyalty), showing a tendency toward lower scores, with several variables displaying right-skewed distributions. Kurtosis values range from -0.65 (Trust) to 2.22 (Services Offered), indicating different levels of flatness, with most variables showing light tails, except for Ease of Usage and Customer Loyalty, which exhibit higher peaks. Overall, the data indicate low to moderate satisfaction across these dimensions, with some variability in specific areas.

Table 2: Reliability analysis

| Dimensions | Cronbach's Alpha |
|------------------------|-------------------------|
| Reliability | 0.91 |
| Efficiency | 0.91 |
| Ease of Usage | 0.90 |
| Safety and Security | 0.91 |
| Responsiveness | 0.90 |
| Customer Care | 0.92 |
| Services Offered | 0.90 |
| Trust | 0.91 |
| Privacy of Information | 0.91 |
| Customer Satisfaction | 0.90 |
| Customer Loyalty | 0.90 |

The table displays Cronbach's Alpha values for different aspects of customer service and satisfaction, all surpassing 0.90. This reflects outstanding internal consistency and reliability across all evaluated constructs, indicating that the items within each aspect are closely related and effectively represent the underlying concepts. Notably, Customer Care exhibits the highest reliability at 0.92, while other dimensions such as Reliability, Efficiency, Trust, and Customer Loyalty also show strong reliability, ranging from 0.90 to 0.91. This strength reinforces the validity of these dimensions for further analysis.

Table 3: Regression Analysis

| Dependent Variable | Independent Variable | Beta (β) | p-value | VIF |
|---------------------------|-----------------------------|----------------------------------|----------------|------------|
| Customer Satisfaction | Services quality | 0.13 | <0.001 | 2.32 |
| Customer loyalty | Customer Satisfaction | 0.77 | <0.001 | 1.00 |

The results of the regression analysis show important connections between the variables studied. Service Quality has a positive impact on Customer Satisfaction, with a beta coefficient (β) of 0.13, indicating a modest yet significant effect (p -value < 0.001). The Variance Inflation Factor (VIF) of 2.32 suggests that multicollinearity is not a concern. Furthermore, Customer Loyalty is significantly affected by Customer Satisfaction, with a beta coefficient (β) of 0.77, reflecting a strong and highly significant relationship (p -value < 0.001) and no multicollinearity issues (VIF = 1.00). These findings underscore the essential roles of service quality and satisfaction in enhancing customer loyalty.

Table 4: Mediation analysis

| Effect | Predictor Variable | Outcome Variable | Beta | Standardized Beta (β) | t-Value | P -Value |
|-------------------------------------|-----------------------|-----------------------|-------|-------------------------------|---------|----------|
| Direct Effect | Customer Loyalty | Service Quality | 0.829 | 0.743 | 24.300 | <0.001 |
| Path H1 (IV \rightarrow mediator) | Service Quality | Customer Satisfaction | 0.892 | 0.707 | 21.909 | <0.001 |
| Path H3 (Mediator \rightarrow DV) | Customer Satisfaction | Customer Loyalty | 0.438 | 0.494 | 13.394 | <0.001 |
| Path H4 (Direct Effect) | Service Quality | Customer Loyalty | 0.439 | 0.393 | 10.653 | <0.001 |

Indirect Effect: Beta (H1 x H2) = 0.892 x 0.438 = 0.391

The contribution of Customer satisfaction to service quality (SQ) customer loyalty (CL) relationship is examined by mediation analysis. Results show a significant correlation between Customer Satisfaction and Service Quality (B 0.892), ($p < 0.001$) i.e., customers are very satisfied when they consider service as high quality. On the other hand CS has a strong independent effect on CL (B 0.438), ($p < 0.001$), i.e. customer loyalty significantly increases for companies when they are satisfied.

Mediating satisfaction is not taken into account, Service Quality is a direct predictor of Customer Loyalty (B 0.439), ($p < 0.001$), suggesting that service quality will be a strong predictor of loyalty, independent of other factors. The indirect effect the Service Quality on Customer Loyalty via Customer Satisfaction is significant (H1 x H2) = 0.391, meaning that satisfaction mediates this effect partially. This implies that service quality, by itself, can be a loyalty promoter but, in the presence of the extent of customer satisfaction, the entire relationship is further strengthened. These findings draw attention to the importance of providing high quality service to meet customers' needs and, subsequently, increase the loyalty of the customer. With their focus not only on quality but also on satisfaction, organisations can build stronger, more resilient customer relationships.

Table 5 : Moderation Analysis

| Independent Variable | Moderator | Dependent Variable | Interaction Effect (β) | p-value | Significance |
|-----------------------------|------------------|---------------------------|--|----------------|---------------------|
| Service Quality | Age | E-Customer Satisfaction | 0.13 | 0.02 | Significant |
| Service Quality | Gender | E-Customer Satisfaction | 0.09 | 0.07 | Not Significant |
| Service Quality | Marital Status | E-Customer Satisfaction | 0.15 | 0.01 | Significant |
| Service Quality | Occupation | E-Customer Satisfaction | 0.10 | 0.04 | Significant |

The moderation analysis results show that Age, Marital Status, and Occupation have an influence on the link between Service Quality and E-Customer Satisfaction. The interaction effects are $\beta = 0.13$ ($p = 0.02$), $\beta = 0.15$ ($p = 0.01$), and $\beta = 0.10$ ($p = 0.04$) . This means that service quality affects customer satisfaction across age groups marital statuses, and job roles. Companies need to create specific service strategies to address these differences. For example older customers married people, or working professionals might value certain aspects of service quality more than others. However, Gender doesn't change the relationship much ($\beta = 0.09$, $p = 0.07$). This suggests that men and women see the effect of service quality on satisfaction in a similar way. In the end, these findings stress how important it is to think about demographic factors when creating and providing service experiences to boost customer satisfaction .

Discussion

The results of this study underscore the importance of Service Quality in shaping E-Customer Satisfaction and E-Customer Loyalty while also highlighting the moderating roles of demographic factors. A descriptive analysis of the data, presented in Table 1, indicates that customer ratings for the dimensions of service quality, such as Reliability, Efficiency, and Customer Care, are generally low to moderate with slight variability and a tendency toward skewed distributions. This indicates that customers see areas for improvement in various dimensions of service quality. The reliability analysis in Table 2 shows high internal consistency (Cronbach's Alpha > 0.90), thus confirming the validity of the constructs used. The regression analysis in Table 3 shows that Service Quality significantly impacts Customer Satisfaction ($\beta = 0.13$, $p < 0.001$) and that Customer Satisfaction strongly predicts Customer Loyalty ($\beta = 0.77$, $p < 0.001$). This shows the important place of satisfaction as a determinant of loyalty. Mediation analysis Table 4 also confirms that relationship, which states

Customer Satisfaction partially, mediates the Service Quality effect on Customer Loyalty. Although Service Quality has a direct relationship with loyalty ($\beta = 0.439$), its strength is increased when Customer Satisfaction is considered as a mediator (indirect effect = 0.391). The moderation analysis (Table 5) adds depth to these findings by showing that Age, Marital Status, and Occupation significantly moderate the Service Quality, E-Satisfaction relationship. However, Gender does not have a significant moderating effect. These results suggest that service experiences resonate differently across demographic subgroups, reinforcing the need for tailored approaches to service delivery.

II.CONCLUSION

This research illustrates that Service Quality serves as a crucial driver of Customer Satisfaction (and, ultimately, Customer Loyalty). The mediating role of Customer Satisfaction underscores its significance in fortifying the Service Quality and E-Loyalty connection. However, demographic factors such as Age, Marital Status and Occupation significantly moderate the impact of Service Quality on E-Customer Satisfaction. This indicates that customer demographics can influence perceptions and satisfaction levels. The findings suggest that organizations might enhance customer relationships by concentrating on service quality dimensions, because they must also address demographic specific needs. Although the results are compelling, further investigation is accepted.

Recommendations

1. Service Quality Dimensions: Focus on improving key service quality dimensions like Reliability, Responsiveness and Customer Care to increase customer satisfaction.
2. Segmented Service Strategies: Given demographics have a moderating effect, companies should have segmented service strategies.

For example:

Age specific programs (e.g. senior friendly services)

Marital status specific needs (e.g. personalized offers for families)

Occupation specific service solutions for working professionals

3. Customer Satisfaction Programs: Since satisfaction mediates loyalty, companies should focus on programs that increase satisfaction like improved feedback systems, efficient complaint handling and customer centric policies.
4. Employee Training: Equip employees with the skills to address diverse customer needs across demographics, ensuring consistent and high-quality service delivery.

Managerial Implications

The findings provide valuable insights for managers striving to enhance Customer Loyalty:

1. Customer Satisfaction is a key performance metric that drives customer loyalty. Satisfaction will pay long term dividends in terms of retention and advocacy.
2. The moderating effect of demographics means you need to segment your service delivery. Managers should look at customer demographics and design strategies to address different needs.
3. High internal reliability (Cronbach's Alpha > 0.90) across all constructs means the tools used to measure customer perception are robust. You can use these tools for future measurements and strategy development.
4. Service dimensions like Responsiveness and Ease of Usage require special attention due to their variability and skewed perceptions, indicating uneven experiences across customers.

Limitations

1. Sample: The sample may not be representative of the broader population or industry.
2. Cross-Sectional: Data was collected at one point in time, so may not capture changes over time.
3. Limited Moderators: Only demographic variables (Age, Gender, Marital Status, and Occupation) were tested as moderators; income and education were not.
4. Self-Reported: Self-reported measures may introduce response bias or social desirability.

Future Research

1. Longitudinal: Future research could be longitudinal to see how Service Quality, Customer Satisfaction and Loyalty change over time.
2. More Moderators: Explore other demographic or behavioral moderators, such as income levels, educational backgrounds, and cultural differences to get more insight.
3. Industry-Specific: Do similar research in other industries (e.g. healthcare, hospitality, e-commerce) to compare and find industry specific trends.
4. Qualitative: Incorporate qualitative methods (interviews, focus groups) to get customers' subjective experiences and find more factors that influence satisfaction and loyalty.
5. Tech: How do customers feel about AI, chatbots Etc.

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