Customer Satisfaction in Online Banking Services: A Case Study of a Bank's Clientele in Klang Valley, Malaysia

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Abstract
This study analyses the determinants affecting customer satisfaction with online banking services at a branch bank in Klang Valley, Malaysia, utilizing a sample of 137 responses. The analysis concentrated on security, customer loyalty, service quality, and convenience. The analysis conducted with XLSTAT 2019 indicated that customer loyalty and convenience (p-value < 0.05) significantly influence customer satisfaction, as customer loyalty and convenience to online banking services improve the overall experience. Nonetheless, security and service quality were determined to be insignificant (p-value > 0.05), indicating that customers may prioritize convenience and loyalty over these elements. Future research should investigate the effects of digital payment integration and user data privacy on customer satisfaction, as these trends are gaining significance in online banking.
Keywords: Customer Satisfaction, Online Banking Services, Customer Loyalty, Convenience

Introduction
In recent years, Malaysia's digital banking sector has undergone significant expansion, propelled by heightened internet accessibility, increased mobile device utilization, and robust governmental initiatives for digital transformation. The increase of online and mobile banking services has become prevailing, as customers prefer these platforms for their convenience and efficiency. (Kasilingam, 2024). Bank Negara Malaysia's (BNM) 2023 annual report indicates that mobile banking transactions surged around 1.67 billion transactions in 2023 compared to year 2022 signifying the nation's progressive transition to digital financial solutions. The COVID-19 pandemic has further accelerated this trend, increasing the demand for contactless banking services. The emergence of new digital-only banks in Malaysia, after BNM's issuance of digital banking licenses in 2022, is anticipated to augment financial inclusion and serve the technologically adept populace (Ayinaddis et al., 2023; Wen et al., 2023).

Enhancing service quality and customer retention is essential for banks, as online banking has emerged as a crucial differentiator in the sector (Mohapatra et al., 2024; Sudirjo et al., 2024).

Customer satisfaction directly influences retention and loyalty (Gautam & Sah, 2023) by examining this domain, banks can acquire actionable insights into the determinants of satisfaction or dissatisfaction, thereby improving their service offerings (Drakshayani & Syed, 2024), cultivating trust (Komara & Utami, 2024), and nurturing enduring relationships with customers. Furthermore, comprehending customer satisfaction can reveal obstacles to online banking adoption, including usability issues or security apprehensions (Khan et al., 2023). Resolving these issues enhances financial inclusion by guaranteeing that online banking services are accessible, dependable, and user-friendly for a diverse array of customers in that region (Mohapatra et al., 2024).

According to Ayinaddis et al (2023), the growing transition to digital banking, has rendered the comprehension of customer satisfaction in online banking essential for banks to maintain competitiveness. This research can pinpoint deficiencies in online services and enhance platforms to accommodate the changing requirements of digitally engaged consumers. Moreover, Klang Valley, as the most urbanized and developed area in Malaysia, possesses a significant concentration of technologically adept consumers. A concentrated study offers significant insights into the expectations, behaviors, and satisfaction levels of these users, which can guide comprehensive strategies for improving customer experience in online banking throughout Malaysia. As a result, this study aimed at addressing the following objective:
to study the relationship between security, customer loyalty, service quality, convenience, and customer satisfaction among bank clients at a bank in Klang Valley, Malaysia.

This study is crucial for enhancing service delivery in online banking by identifying factors security, customer loyalty, service quality, and convenience that influence customer satisfaction. Focusing on these areas enables banks to improve their platforms and more effectively satisfy customer expectations. Moreover, comprehending customer satisfaction is essential for fostering the expansion of the financial sector, as a robust digital banking framework is imperative for sustaining a competitive advantage and promoting innovation within Malaysia's financial services. This study offers valuable insights into changing customer needs and preferences, enabling banks to adapt and enhance their service in response to the rapid shifts in their client's behavior driven by technological advancements.

The research will be advantageous to various stakeholders. It provides banks and financial institutions with critical insights for optimizing online banking services to elevate customer satisfaction, reduce loss of customers, and enhance retention. Clients and users of online banking services will gain from these enhancements, as financial institutions can provide improved usability, augmented security features, and more customized services, culminating in elevated user experience. Furthermore, researchers and scholars will benefit from the study, as it enhances the existing knowledge in online banking services and customer satisfaction, offering a regional perspective (Klang Valley) that is valuable for comparative analysis of the bank's client's behavior and market dynamics.

Literature Review
Customer Satisfaction
Customer satisfaction persists as a subject of ongoing focus in research studies. Numerous industries, including telecommunications (Almuhanna & Alharbi, 2023), automotive after-

sales service (Moksin et al., 2023) and banking (Maharaja & Lubis, 2024; Mohapatra et al., 2024; Sudirjo et al., 2024), engage in research on customer satisfaction.

For banks in the digital era, customer satisfaction in online banking services is progressively turning into a crucial indicator of success (Maharaja & Lubis, 2024; Sudirjo et al., 2024; Gautam & Sah, 2023). Consumers' expectations for quick, safe, and user-friendly services have changed greatly as more of them choose online platforms for their financial needs. Among factors that influence customer satisfaction include security, customer loyalty, service quality, and convenience.

Relationship between Security and Customer Satisfaction
The interaction between security and customer satisfaction in online banking services is of paramount importance, given that security frequently ranks as one of the foremost concerns for users (Ayinaddis et al., 2023; Gautam & Sah, 2023). Clients anticipate strong security protocols to safeguard their personal and financial information, and any hint of weakness can erode their confidence in the system. Studies indicate that users are more inclined to persist with online banking services when they have confidence in the security of their transactions(Li et al., 2021). (Gautam & Sah, 2023) indicate that the perception of security has a direct impact on customer satisfaction and trust (Komara & Utami, 2024; Aripin, 2023), as users who feel safeguarded exhibit greater satisfaction with the service provided.

Furthermore, the incorporation of sophisticated security measures, including biometric authentication and two-factor authentication (2FA), has been associated with enhanced customer satisfaction (Bhat et al., 2024; Khan et al., 2023). (Kumar, 2023) noted that individuals who encountered smooth and secure access to online banking services exhibited greater satisfaction and a higher propensity for ongoing usage. In the increasingly competitive realm of online banking, institutions that effectively navigate the delicate cooperation between robust security protocols and user-friendly experiences often achieve superior customer satisfaction compared to their counterparts. Therefore, this study emphasizes the relationship between security and customer satisfaction among bank's clientele.
H1: There is a significant relationship between security and customer satisfaction among the bank's clientele.

Relationship between Customer Loyalty and Customer Satisfaction
Loyal customers typically exhibit a heightened tolerance for irregular service issues, as their prior positive experiences foster increased satisfaction despite the occurrence of problems (Indriastuti et al., 2022; Khan et al., 2023). (Gautam & Sah, 2023) assert that loyal customers exhibit greater forgiveness and are inclined to extend the bank the benefit of the doubt during service interruptions, thereby enhancing sustained satisfaction.

Furthermore, loyalty fosters a sense of attachment and familiarity with the platform, thereby augmenting the overall user experience (Ayinaddis et al., 2023). (Kumar & Mokha, 2021) demonstrate that loyal customers exhibit higher satisfaction due to their adaptation to the bank's system and their trust in its long-term reliability. This suggests that customer loyalty not only encourages repeated usage but also enhances satisfaction as customers grow more familiar and assured with the services offered. Thus, this study emphasizes the relationship between customer loyalty and customer satisfaction among bank's clientele.

H2: There is a significant relationship between customer loyalty and customer satisfaction among the bank's clientele.

Relationship between Service Quality and Customer Satisfaction
Reliability, effectiveness, and ease of use are characteristics of high-quality services, which improve the clientele's overall satisfaction (Drakshayani & Syed, 2024; Sudirjo et al., 2024). Mir et al. (2023), assert that customers who perceive high service quality are more inclined to experience satisfaction with their banking interactions, resulting in enhanced trust and loyalty.

Moreover, reliable and timely customer support is an essential component of service quality that greatly influences satisfaction levels (Ighomereho et al., 2023). Kaur & Arora (2023) discovered that customers who obtain prompt and efficient support when facing problems are more inclined to be satisfied with online banking service. Consequently, banks that emphasize service quality through substantial investment in customer support and integrated digital experiences generally attain elevated customer satisfaction (Alarifi & Husain, 2023; Indriastuti et al., 2022). Consequently, this study focuses on the relationship between service quality and customer satisfaction among the bank's clientele.
H3: There is a significant relationship between service quality and customer satisfaction among the bank's clientele.

Relationship between Convenience and Customer Satisfaction
According to (Ayinaddis et al., 2023), clients prioritize accessibility, round-the-clock availability, and the capability to conduct transactions from any location, thereby greatly improving their banking experience. Convenience is a fundamental determinant of customer satisfaction, corresponding with the growing demand for rapid and efficient digital solutions (Shankar, 2021).

Additionally, simple interfaces and effortless navigation enhance the convenience of online banking, resulting in increased satisfaction levels (Jebarajakirthy & Shankar, 2021). Shankar & Rishi (2020) research indicates that customers who can complete transactions effortlessly are more inclined to report satisfaction with the service. Therefore, convenience streamlines the banking process and cultivates favorable customer experiences, thereby enhancing satisfaction. Thus, this study emphasizes the relationship between convenience and customer satisfaction among the bank's clientele.
H4: There is a significant relationship between convenience and customer satisfaction among the bank's clientele.

Conceptual Framework
Figure 1 displays the conceptual framework employed in this study. The dependent variable is customer contentment. This study aims to ascertain whether four independent variables, namely security, customer loyalty, service quality, and convenience, exhibit a significant relationship with the customer satisfaction of the bank's clientele.
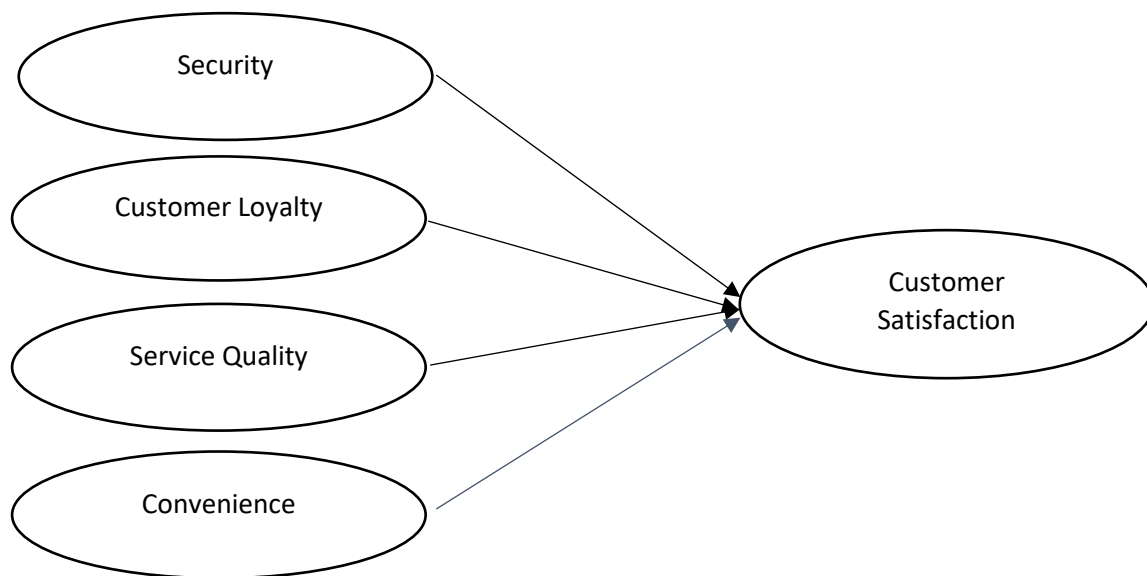
Figure 1. Conceptual Framework of the Study.

Methods

Research Design

This study utilized a quantitative approach to enhance the researchers' comprehension of the relationships between the variables and their significance levels. This study collected primary data via an online questionnaire administered to a bank's customers in Klang Valley, Malaysia. Participant responses were quantified utilizing Likert scales.

Population and Sampling

The study's population is sourced from the bank's database. This bank is a branch located in Petaling Jaya. Petaling Jaya is part of Klang Valley, Malaysia. A total of 5,000 clients were recognized.

The present study employed convenience sampling as a non-probability sampling method. The provided information does not establish a foundation for determining the likelihood of each element in the population being included in the sample. This methodology will be employed by researchers to identify participants in this study. This suggests that the survey should be conducted with individuals who are readily available and present at the designated sampling location. Participants are randomly given questionnaires to gather essential data (Sekaran & Bougie, 2016).

Sampling Size

Krejcie and Morgan (1970), created a table that offers a representative sample of a population, as cited by Sekaran & Bougie (2016). The statistical analysis of a population (N) comprising 5,000 individuals necessitates a sample (S) of 357 responses. However, this study successfully collected 137 survey responses.

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Questionnaire Design
The survey consists of two sections. The survey begins with Section A focusses on the demographic attributes of the participants. This section includes enquiries about the participant's age, gender, gross monthly income, educational attainment, and monthly frequency of online banking usage.

Section B consists of five subsections. This section utilized a five-point Likert scale, where 1 signifies 'Strongly Disagree' and 5 indicates 'Strongly Agree', consistent with commonly used scales (Zikmund et al., 2013). The enquiries were based on the factors specified in the research's independent variables, which encompass security, customer loyalty, service quality, convenience, and the dependent variable of customer satisfaction. The items are sourced and altered from previous studies.

Results
Demographic Analysis
Among the 137 responses, 49.6% were from individuals aged 30 to 49 years. The proportion of female respondents exceeds that of male respondents, with females constituting 55.5% and males 44.5%. 38.7% of respondents indicated that their gross monthly income surpassed RM5,501.

The data reveals that a substantial percentage of respondents possess a bachelor's degree (43.1%), whereas a lesser percentage holds a postgraduate qualification (4.4%). It was determined that 29.9% of respondents utilize online banking services over 21 times monthly.

Data Analysis
The data analysis in this study was conducted using XLSTAT 2019.
Table 1
Reliability Test

Variables	Cronbach's Alpha
Customer Satisfaction	0.923
Security	0.781
Customer Loyalty	0.838
Service Quality	0.898
Convenience	0.775

Cronbach's Alpha is presented in Table 1 to evaluate the measurement's reliability. The results indicated that Cronbach's Alpha value for Customer Satisfaction (0.923), Security (0.781), Customer Loyalty (0.838), Service Quality (0.898), and Convenience (0.775) confirmed the accepted minimal threshold of 0.7 for consistency reliability for each construct, as stated by (Hair et al., 2017).

Table 2
Descriptive Statistics (quantitative data)

Statistic	AVR SC	AVR LO	AVR SQ	AVR CV	AVR CS
Number of observations	137	137	137	137	137
Minimum	2.000	2.000	2.000	2.000	1.800
Maximum	5.000	5.000	5.000	5.000	5.000
Median	4.400	4.000	4.000	4.200	4.000
Sum	585.800	546.600	554.000	564.000	576.600
Mean	4.276	3.990	4.044	4.117	4.209
Variance (n-1)	0.362	0.490	0.470	0.376	0.505
Standard deviation (n-1)	0.602	0.700	0.685	0.613	0.711
Skewness (Pearson)	-0.954	-0.291	-0.513	-0.549	-0.604
Kurtosis (Pearson)	0.906	-0.596	0.035	0.369	0.140

The interpretation of mean values is as follows when the scale range is between 1 and 5, with 1 representing "strongly disagree" and 5 representing "strongly agree," as illustrated in Table 2.

The average security rating is 4.276. This implies that respondents, on average, rated the level of security for statements such as "I think that my current bank should provide the latest encryption technology to secure online transactions", and "I need safe communication access through an online banking website" as slightly above agreement or slightly leaning towards agreement.

The average rating for customer loyalty is 3.990. This suggests that the customer quality was rated by respondents as slightly near to agreement or slightly leaning towards agreement for the statements: "I would like to remain as a customer by continuing the online banking services provided by this bank" and "I am pleased with the complaint resolution of the online banking services offered by my bank" on average.

The average rating for service quality is 4.044. This suggests that, on average, respondents rated the service quality in the following statements: ""I believe that my current bank is efficient in processing any banking transactions" and "I think that the bank's website gives adequate information" as slightly above agreement or leaning slightly towards agreement.

The average rating for convenience is 4.117. This implies that, on average, respondents perceived the convenience of online banking services for statements: ""Online banking services allow me to do any transaction with anyone at anytime and anywhere in the world" and "I believe that online banking services can help to reduce non-monetary costs such as time, energy, and effort" as slightly above agreement or slightly leaning towards agreement.

Ultimately, the average customer satisfaction rating is 4.209. This suggests that, on average, respondents rated their satisfaction with the online banking services for statements such as "The online banking services offered by my current bank meet my expectations" and "I will continue using my current online banking services" as above agree or slightly leaning towards agreement.

According to the criteria established by George & Mallery (2010) and Hair et al. (2010) skewness between -2 and +2 is deemed acceptable, and kurtosis between -7 and +7 is indicative of a normal univariate distribution. The variables' normality can be interpreted as follows:

Skewness Interpretation
The skewness values of all variables are within the acceptable range of -2 to +2. This implies that the variables' distributions can be regarded as reasonably close to a normal distribution, as indicated by this criterion.

Kurtosis Interpretation
The kurtosis values in the descriptive statistics were all less than +0.906, which is the upper limit mentioned in the previous response. Nevertheless, the kurtosis values for all variables remain within an acceptable range, as indicated by the criteria outlined by Hair et al. (2010) which permit kurtosis values anywhere between -7 and +7.
In all, the skewness and kurtosis values of the variables indicate that the data is reasonably close to a normal univariate distribution, as per the criteria outlined by (George & Mallery 2010; and Hair et al., 2010).

Linear Regression Analysis
Table 3.
Multicollinearity Statistics

	AVR Security	AVR Customer Loyalty	AVR Service Quality	AVR Convenience
Tolerance	0.694	0.386	0.360	0.574
VIF	1.440	2.591	2.778	1.742

The variance inflation factor (VIF) is the general guideline for detecting multicollinearity, as illustrated in Table 3.

VIF values that are less than 1: Multicollinearity is not found.

VIF values between 1 and 5 are generally regarded as acceptable, indicating low to moderate multicollinearity.

A VIF value of 5 or higher indicates a high degree of multicollinearity, which suggests that the variables are highly correlated and may present challenges in the regression analysis. The specific threshold for determining multicollinearity may differ based on the context and the field of study, which is a critical point to consider. A higher threshold, such as 10, may be considered by certain researchers when defining significant multicollinearity.

The presence of multicollinearity is indicated by the VIF values in this data, which range from 1.440 to 2.778. A moderate level of multicollinearity is suggested by the relatively high VIF values, which are below the commonly used threshold of 5.

Table 4
Goodness of Fit Statistics

Items	Result
Observations	137.000
Sum of weights	137.000
DF	132.000
R^2	0.412
Adjusted R^2	0.395

The coefficient of determination, or R-squared, is a statistical measure of goodness-of-fit in a regression model. It quantifies the quantity of variance in the dependent variable, customer satisfaction, that can be accounted for by the independent variables, which include security, customer loyalty, service quality, and convenience. The R^2 value, 0.412, in Table 4, indicates the percentage of variance in the dependent variable that is accounted for by the independent variables in the regression model. It suggests that the independent variables included in the model account for approximately 41.2% of the variability in the dependent variable.

The adjusted R^2 value, 0.395, is a modified version of R^2 that accounts for the number of predictors in the model and the degrees of freedom in this study. It penalizes the inclusion of superfluous variables. In this instance, the adjusted R^2 is marginally lower than the R^2, suggesting that the predictive power of the model has been slightly diminished when the number of predictors and degrees of freedom are considered.

Table 5
Analysis of Variance

Source	DF	Sum of squares	Mean squares	F	Pr > F
Model	4	28.334	7.083	23.158	**< 0.0001**
Error	132	40.376	0.306		
Corrected Total	136	68.709			

Computed against model Y=Mean (Y)

Table 5 indicates that the model explains a substantial portion of the variance in the dependent variable and has four degrees of freedom (DF). The F-statistic is 23.158, and the p-value (Pr > F) is less than 0.0001, suggesting that the model is highly significant in explaining the variation in customer satisfaction.

Table 6
Regression Coefficient Result

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Intercept	0.840	0.389	2.160	**0.033**	0.071	1.609
AVR SC	0.071	0.095	0.751	0.454	-0.116	0.258
AVR LO	0.256	0.109	2.347	**0.020**	0.040	0.472
AVR SQ	0.180	0.115	1.561	0.121	-0.048	0.408
AVR CV	0.320	0.102	3.132	**0.002**	0.118	0.521

Table 6 illustrates that customer satisfaction is significantly correlated with customer loyalty and convenience, as evidenced by their highly significant p-values (< 0.05). Nevertheless, the p-values of security and service quality are greater than the conventional threshold of 0.05, which implies that their correlations with customer satisfaction may not be statistically significant.

These results imply that customer loyalty and convenience are significant predictors of customer satisfaction disparity. Nevertheless, the importance of security and service quality may be contested.

Table 7
Standardized Coefficients

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
AVR SC	0.060	0.080	0.751	0.454	-0.098	0.218
AVR LO	0.252	0.107	2.347	**0.020**	0.040	0.465
AVR SQ	0.174	0.111	1.561	0.121	-0.046	0.394
AVR CV	0.276	0.088	3.132	**0.002**	0.102	0.450

The standardized coefficients in Table 7 offer insight into the relative significance and influence of each predictor variable on the dependent variable. When standardized, these coefficients represent the impact of each predictor, enabling a comparison of their relative contributions (Siegel & Wagner, 2023).

The standardized coefficient for security is 0.060, which suggests that a 0.060 standard deviation increase in customer satisfaction is correlated with a one-standard-deviation increase in security. There is no significant p-value (p > 0.05), which implies that the influence of security on customer satisfaction may not be statistically significant.

According to the standardized coefficient for customer loyalty, a one-standard-deviation increase in customer loyalty is equivalent to a 0.252 standard deviation increase in customer satisfaction. It has a substantial p-value (< 0.05), suggesting that it has a positive effect on customer   satisfaction.

A one-standard deviation increase in service quality corresponds to a 0.111 standard deviation increase in customer satisfaction, as indicated by the standardized coefficient for service quality which is 0.111. Nevertheless, the p-value (0.121) is not statistically significant at the conventional threshold (p > 0.05), suggesting that the influence of service quality on customer satisfaction may not be statistically significant.

A one-standard-deviation increase in convenience is associated with a 0.088 standard deviation increase in customer satisfaction, as indicated by the standardized coefficient for convenience of 0.088. The p-value is highly significant (0.002), indicating that it has a substantial positive effect on customer satisfaction.

When evaluating the relative significance and importance of each predictor, it is crucial to consider both the magnitude of the standardized coefficients and their associated p-values. In this instance, customer loyalty and convenience seem to be the most significant predictors

of customer satisfaction. Security and service quality may have less statistically significant contributions.

Summary of Hypotheses

The p-value from table 7 above will be used to ascertain whether the hypothesis is being accepted or rejected. Table 8 provides a summary of the hypotheses' results:

Table 8
Hypotheses Results

	Hypothesis description	p-value	Result
H_1	There is a significant relationship between security and customer satisfaction among the bank's clientele.	0.454	Rejected
H_2	There is a significant relationship between customer loyalty and customer satisfaction among the bank's clientele.	0.020	Accepted
H_3	There is a significant relationship between service quality and customer satisfaction among the bank's clientele.	0.121	Rejected
H_4	There is a significant relationship between convenience and customer satisfaction among the bank's clientele.	0.002	Accepted

Discussion and Conclusion

There is no relationship between security and customer satisfaction among this bank's clients. This result was inconsistent with prior research that suggested that customer satisfaction in online banking services is influenced by security (Ayinaddis et al., 2023; Khan et al., 2023). This result can be explained that the participants in this study already have a belief that robust security measures are a standard feature, which causes them to concentrate on other aspects, such as convenience. The satisfaction of this group of respondents is more influenced by immediate aspects such as ease of use, speed, and customer support, rather than the underlying security systems. This is because security concerns may be less visible to this group of respondents unless an issue arises.

The relationship is significant for customer loyalty. Customer loyalty is the second highest factor after convenience (standard coefficient 0.252) impacting on the customer satisfaction of this bank's client. Customer loyalty refers to the willingness of a customer to engage with and make purchases from a particular brand or service on multiple occasions, all of which is motivated by positive experiences (Gautam & Sah, 2023; Teeroovengadum, 2020). As a result, loyalty creates a cycle in which satisfied customers continue to use and recommend the service, thereby reinforcing their overall satisfaction and commitment.

This study reports that there is no relationship between service quality and customer satisfaction among this bank's clients. This outcome was inconsistent with prior research that indicated that customer satisfaction in online banking services is influenced by service quality (Drakshayani & Syed, 2024; Sudirjo et al., 2024; Ighomereho et al., 2023). The respondents may prioritize convenience and ease of use over technical service quality, as they arrange fast,

accessible transactions over the quality of customer interactions. Furthermore, this bank's online banking customers may anticipate a fundamental level of service quality across all platforms, which may prompt them to focus on other distinguishing factors over the standard service offerings.

Lastly, the independent variable of convenience has been demonstrated to have a substantial correlation with customer satisfaction among the clients of this bank. The convenience factor is the primary factor in the satisfaction of the bank's clients, as evidenced by the highest standard coefficient of 0.276. In line with similar studies, convenience is a factor that allows the customer to conduct transactions at any time and from any location (Jebarajakirthy & Shankar, 2021; Shankar & Rishi, 2020), which is consistent with the respondents of this study's fast-paced lifestyles living in Klang Valley, one of the busiest places in Malaysia. Furthermore, a user-friendly interface with straightforward navigation minimizes the time and effort necessary to complete banking tasks, resulting in a more efficient and positive customer experience that significantly increases satisfaction.

This study has contributed to the existing body of literature regarding the factors that influence the satisfaction of a bank's clientele in Klang Valley, Malaysia. Nevertheless, the findings of this investigation are not applicable to a broader population, given the small percentage of responses received and also as the respondents are exclusively from a single branch bank. To ensure that the results are more accurate and accurately reflect the satisfaction of customers with online banking services, it would be beneficial to conduct future comparisons with a different bank and location.

Future research on consumer satisfaction with online banking services will be most likely to concentrate on investigating the impact of digital payment integration and user data privacy. The impact of the integration of digital wallets, mobile payments, and other fintech solutions within online banking platforms on customer satisfaction rate. The investigation on the impact of transparency in data usage, privacy policies, and the ethical handling of customer data on satisfaction. As digital payment integration and data privacy become increasingly important, the way banks manage and communicate these issues could significantly impact customer satisfaction.

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