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THE ROLE OF SERVICE QUALITY AND DIGITAL BANKING IN ENHANCING CUSTOMER LOYALTY THROUGH CUSTOMER ENGAGEMENT AS AN INTERVENING VARIABLE (A STUDY ON EMPLOYEES OF PT BANK BNI PEKALONGAN CITY BRANCH OFFICE)

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ABSTRACT
This study intent to examine the effects of Service Quality and Digital Banking on Customer Loyalty, with Customer Engagement serving as a mediating variable. The study was conducted on 100 customers of PT Bank BNI's Pekalongan Branch using a quantitative approach. Data were collected via a structured questionnaire and analyzed using SPSS. The results indicate that Service Quality does not have a significant effect on Customer Engagement, whereas Digital Banking has a positive and significant effect on Customer Engagement. Further, Service Quality has a positive and significant effect on Customer Loyalty, while Digital Banking and Customer Engagement do not have a significant effect on Customer Loyalty. The mediation test results also show that Customer Engagement does not mediate the effects of Service Quality or Digital Banking on Customer Loyalty. These findings indicate that Customer Engagement has not yet served as an effective mediating pathway in enhancing customer loyalty within the context of this study. Managerial implications suggest that enhancing customer loyalty is more effectively achieved through direct improvements in core service quality, rather than through enhancing customer engagement alone. Thus, banking strategies should prioritize improving Service Quality as the primary factor in building customer loyalty.

INTRODUCTION

Advances in information technology have driven a major transformation in the banking industry through the accelerated digitization of services, which has changed the way banks provide services while also shifting customer expectations regarding the quality of service received. In the banking industry, service quality is a key factor in determining customer satisfaction and loyalty, as high-quality service fosters comfort, trust, and a positive experience for customers. Customer satisfaction levels are shaped by various aspects such as service reliability, responsiveness,

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security, and ease of use of digital banking services; thus, a perception of better service quality increases the likelihood that customers will remain loyal to the services provided (Abror et al., 2018; Rodhiah et al., 2022; Shabani et al., 2022).

In line with these developments, digital banking has become an increasingly popular innovation because it offers customers convenience, comfort, efficiency, and transaction security (Khan et al., 2009; Lakchan & Samaraweera, 2023). The availability of mobile banking and internet banking allows customers to conduct transactions anytime and anywhere, thereby increasing flexibility and customer satisfaction with banking services (Ruspandi, 2025; Yasmin & Dirbawanto, 2022). Further, digital transformation enables banks to leverage customer data to provide more personalized services, thereby creating experiences that are more relevant to customers' needs (Khan et al., 2009; Yadav & Rai, 2019). Even so, the successful implementation of digital technology depends not only on the sophistication of the system, but also on the bank's ability to maintain service quality so that it remains responsive to customer needs (Yadav & Rai, 2019).

In the context of modern banking services, service quality and digital transformation are closely interrelated with customer engagement. High service quality encompassing dimensions of reliability, responsiveness, assurance, empathy, and tangibility has been demonstrated to enhance customer satisfaction, which in turn fosters more active customer engagement with the organization (Hidayat et al., 2020). Superior service quality further cultivates trust and perceived comfort, thereby reinforcing customers' emotional attachment to the institution (Arora & Banerji, 2024). Conversely, service performance that fails to meet customer expectations is likely to diminish interaction levels and accelerate switching behavior toward competitors (Shabani et al., 2022). Within digital environments, customer engagement is significantly shaped by the quality of interactions mediated through digital platforms including system responsiveness, navigational ease, transactional security, and customer support accessibility (Widiyanto, 2018; Hamdat et al. 2020; Subahudin & Shahrom, 2023). These findings shed light that digital service quality can no longer be evaluated solely on technical parameters; rather, it must also be assessed in terms of its capacity to generate emotional and behavioral customer engagement through the overall service experience.

Digital banking plays a pivotal role in cultivating customer engagement, as digital financial services have evolved beyond their traditional function as transactional conduits into interactive media that strengthen the relational bond between customers and banking institutions. Customer engagement within digital banking encompasses a broad spectrum of behavioral manifestations, including product information seeking, participation in loyalty programs, and real-time utilization of customer support services (Ahmed et al., 2014). Empirical evidence suggests that digital banking platforms characterized by responsiveness, security, and usability are positively associated with heightened levels of customer engagement (Kumalasari & Pratama, 2025; Widiyanto, 2018). Furthermore, digital banking demonstrates the capacity to foster deeper emotional connections through data-driven service personalization, rendering customer experiences more contextually relevant and value-laden (Marlina & Bimo, 2018; Khan et al., 2009; Yadav & Rai, 2019). Accordingly, the effectiveness of digital banking should not be assessed merely on the basis of technology adoption rates, but also on the extent to which digital platforms are capable of enhancing meaningful customer engagement.

Ultimately, the primary objective of banking marketing strategy is the cultivation of customer loyalty. Customer loyalty is established through positive service experiences, institutional trust, and the long-term relational bonds forged between customers and banking organizations (Syahran et al., 2022). Prior investigation demonstrates that service quality bears a significant association with customer loyalty, as prompt, accurate, and needs-responsive service enhances customer trust and engenders a sense of comfort conducive to sustained loyalty (Al-dweeri et al., 2017). High service quality further motivates customers to participate in loyalty programs, provide positive feedback, and engage in referral behavior (Pelealu, 2022). Conversely, substandard service delivery is likely to amplify switching intentions toward competing institutions (Triyanti et al., 2021). Emotional factors including personalized attention, expedient complaint resolution, and effective problem-solving additionally reinforce customers' emotional attachment as a foundational determinant of customer loyalty (Sikdar & Makkad, 2015; Astrini, 2021).

Aside from service quality, digital banking is also reported to have an influence on customer loyalty because it is able to provide more flexible, efficient, and easily accessible services at any time (Asad et al., 2016; Ismulyaty et al., 2022). Ease of access is an important factor because customers who can access services without having to visit a branch office tend to feel more satisfied and valued (Lutfi, 2024). A responsive, secure, and efficient digital experience is also capable of creating emotional connections that strengthen customer loyalty (Ismulyaty et al., 2022). Data-based service personalization provides added value that increases the perception that the bank understands customer needs (Masadah et al., 2020). Support features such as real-time notifications and data analysis-based product recommendations also help maintain an active relationship between customers and the bank so that customers tend to continue using the same services (Mawarni, 2021).

On the other hand, customer engagement is regarded as an important factor in strengthening customer loyalty (Yanis et al., 2019) because it indicates how much customers interact with and feel connected to the company both through digital channels and direct interactions (Brodie et al., 2011). Customers who actively interact, provide feedback, participate in loyalty programs, and use various available services tend to have a stronger relationship with the company (Sashi, 2012; Hendriyani et al., 2018). A high level of engagement strengthens customer trust and comfort, thereby increasing loyalty because customers feel heard and valued by the company (Vivek et al., 2012). Active involvement also creates a sense of belonging that makes customers more willing to build long-term relationships with the company (Hamdat et al., 2020; Baskara and Pranaditya 2022). Findings from previous studies also indicate that an increase in customer engagement is directly proportional to an increase in customer loyalty because actively engaged customers tend to use services more frequently and recommend them to others (Mulia et al., 2020; Cheng et al., 2020). Conversely, low customer engagement can increase the tendency of customers to switch to competitors due to a lack of meaningful interaction (Agrawal and Mittal (2022).

This phenomenon becomes relevant in the context of PT Bank BNI Pekalongan City Branch Office. Operational data from 2021 to 2024 shows that the number of mobile banking users has increased every year, with the highest growth of 23.08% in 2022. However, several indicators show a slowdown in growth, such as a decline in new customer growth from 37.5% in 2023 to 27.27% in 2024, a decline in internet banking transaction growth from 25% in 2022 to 16.67% in 2024, and a decrease in the number of BNI Mobile application downloads of 13.33% in 2024. This condition indicates that an increase in digital banking adoption does not necessarily automatically result in an increase in customer loyalty, so a deeper understanding of the factors influencing customer loyalty amid digital transformation is needed.

Based on the above description, the research gap of this study lies in two aspects. Theoretically, previous studies have tended to examine the direct relationships between service quality, digital banking, customer engagement, and customer loyalty separately, while studies that integrate service quality and digital banking simultaneously with customer engagement as an intervening variable are still relatively limited, particularly in the context of digital transformation in the banking sector (Lakchan & Samaraweera, 2023; Lutfi, 2024; (Mawarni, 2021). In addition, previous studies have focused more on the direct influence of variables on loyalty, so the role of customer engagement as a mediation mechanism still requires further testing (Lie et al., 2019). Empirically, studies that examine this phenomenon among regional banking customers who are experiencing increased digital adoption but continue to face challenges in maintaining customer growth and loyalty are still limited. Therefore, this study offers novelty by examining the role of customer engagement as an intervening variable in the relationship between service quality and digital banking on customer loyalty among customers of PT Bank BNI Pekalongan City Branch Office, with the expectation of providing theoretical contributions as well as practical implications for strengthening customer loyalty strategies in the digital era.

Based on Figure 1, this study examines the influence of service quality and digital banking on customer loyalty with customer engagement as an intervening variable. The research model includes the influence of service quality on customer engagement (H1), digital banking on customer engagement (H2), service quality on customer loyalty (H3), digital banking on customer loyalty (H4), and customer engagement on customer loyalty (H5).

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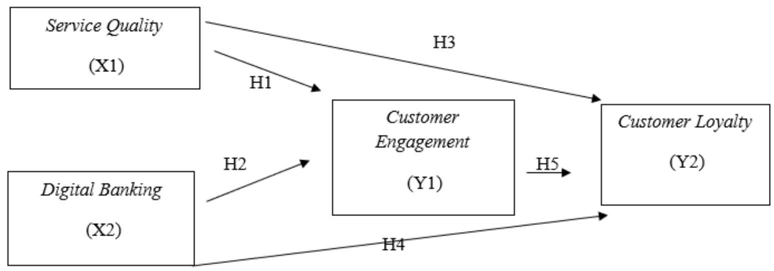

Figure 1. Conceptual Framework
Source: Articles processed by the author, 2024

METHODS

This study uses an explanatory research approach with a quantitative method. The explanatory approach is used to examine causal relationships between research variables and to analyze the influence of independent variables on the dependent variable based on the hypotheses that have been formulated (Sugiyono, 2022). The population in this study is all customers of PT Bank BNI Pekalongan City Branch Office. The sampling technique uses purposive sampling with the criterion that respondents are customers who have conducted banking transactions at least three times. Because the population size is not precisely known, the determination of the sample size was carried out using a sample size formula for an unknown population. Based on calculations at a 95% confidence level and a 5% margin of error, a sample size of 97 respondents was obtained, which was then rounded up to 100 respondents to facilitate data processing and improve the representativeness of the study.

The data used are primary data obtained through the direct distribution of questionnaires to respondents. Variable measurement was conducted using a five-point Likert scale with a score range of 1 = strongly disagree to 5 = strongly agree, so that higher values indicate a greater level of agreement with the statements provided. This study uses two independent variables, namely service quality and digital banking. The service quality variable is measured using the five SERVQUAL dimensions, which include tangibles, reliability, responsiveness, assurance, and empathy. The digital banking variable is measured through the dimensions of tangibility, privacy, system availability, efficiency, and responsiveness (Lakchan & Samaraweera, 2023). The intervening variable in this study is customer engagement, which is measured using the dimensions of enthusiasm, attention, interaction, identification, and absorption (So et al., 2012). Meanwhile, the dependent variable, namely customer loyalty, is measured using the dimensions of customer retention, recommendation, customer trust, banking product satisfaction, and intention to recommend (Nguyen et al., 2020).

The data analysis technique was carried out through several stages. Testing of the research instruments includes a validity test by comparing the r value and the r table value at a significance level of 5%, as well as a reliability test using Cronbach's Alpha with a minimum value of 0.60 (Ghozali, 2006). The classical assumption tests include a normality test using Kolmogorov-Smirnov, a multicollinearity test by examining tolerance values of more than 0.10 and a Variance Inflation Factor (VIF) of less than 10, and a heteroscedasticity test using a scatterplot. Subsequently, hypothesis testing was conducted using multiple linear regression analysis and path analysis to examine the direct and indirect influences between variables. The t-test is used to determine the significance of the partial influence at a significance level of 5%, while the coefficient of determination (R^2) is used to measure the ability of the independent variables to explain the variation in the dependent variable. Testing of the mediating effect of customer engagement was conducted using the Sobel Test with a significance criterion of p-value less than 0.05 (Ghozali, 2011).

RESULTS

Research Results

Respondent Characteristics

This study involved 100 customers of PT Bank BNI Pekalongan City Branch Office as respondents. The characteristics based on gender, duration of being a customer, and education level are presented as follows.

Table 1. Respondent Characteristics

Characteristic	Category	Frequency	Percentage (%)
Gender	Male	50	50.0
	Female	50	50.0
Duration as Customer	1 Year	28	28.0
	2 Years	19	19.0
	3 Years	1	1.0
	4 Years	1	1.0
	5 Years	25	25.0
	6 Years	26	26.0
Education Level	Senior High School	29	29.0
	Diploma	23	23.0
	Bachelor’s Degree	25	25.0
	Master’s Degree	23	23.0
Total		100	100.0

Source: Primary Data processed, 2025

Looking at the data presented in the table, there is an equitable representation of male and female respondents, each comprising 50% of the total. Regarding customer tenure, a significant portion consists of customers who have been with the service for one year (28%), closely followed by those with six years (26%) and five years (25%). This suggests a mix between new clients and those demonstrating long-term loyalty to the bank. From an educational standpoint, respondents exhibit a balanced distribution across various levels: Senior High School graduates constitute 29%, while holders of Bachelor’s Degrees make up 25%. Additionally, individuals with Diplomas account for 23%, alongside another group holding Master’s Degrees at also 23%. This variety illustrates a spectrum of educational backgrounds that enrich perspectives when evaluating banking services.

Descriptive Analysis

To summarize respondent views on all study variables, the researchers performed a descriptive analysis. The resulting data are shown in the subsequent table.

Table 2. Descriptive Analysis Outcomes

Variable	Indicator	Average Score	Equivalent Score (1-5)	Category
Digital Banking	Tangibility	5.68	4.06	High
	Privacy	5.64	4.03	High
	System Availability	5.72	4.09	High
	Efficiency	5.82	4.16	High
	Responsiveness	5.55	3.96	High
Customer Engagement	Enthusiasm	5.74	4.11	High
	Attention	5.66	4.04	High
	Interaction	5.82	4.16	High
	Identification	5.70	4.07	High
	Absorption	5.78	4.13	High
Customer Loyalty	Customer Retention	5.73	4.10	High
	Recommendation	5.74	4.11	High
	Customer Trust	5.78	4.13	High

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Banking Product Satisfaction	5.80	4.14	High
Intention to Recommend	5.99	4.28	Very High

Source: Primary Data processed, 2025

The results of the descriptive analysis note that all research variables received positive assessments from respondents. For the digital banking variable, the high efficiency score indicates that the digital services of BNI KC Pekalongan are considered capable of providing ease and speed of transactions, although the aspect of responsiveness still needs to be improved so that the service experience is more optimal. For customer engagement, the dominance of the interaction aspect shows that customers have a fairly high level of involvement with bank services, reflecting a relationship that is not only transactional but also relational. Meanwhile, customer loyalty shows the strongest results, particularly on the intention to recommend indicator, which falls in the very high category, indicating that customers have a high level of satisfaction and trust, making them potential promoters of bank services through recommendations to others.

Validity Test Results

To evaluate validity, this research determined the correlation between each survey item's score and the total score aggregated from all items.

Table 3. Validity Test Outcomes

No.	Variable	Item	Factor Loading	Criteria (≥0.40)	Description
1.	Service Quality (SQ)	SQ3	0.425	Valid	Preserved
		SQ5	0.451	Valid	Preserved
		SQ6	0.690	Valid	Preserved
		SQ7	0.733	Valid	Preserved
		SQ8	0.721	Valid	Preserved
		SQ9	0.587	Valid	Preserved
		SQ10	0.462	Valid	Preserved
		SQ11	0.557	Valid	Preserved
		SQ12	0.624	Valid	Preserved
		SQ13	0.735	Valid	Preserved
		SQ14	0.682	Valid	Preserved
		SQ15	0.679	Valid	Preserved
		SQ16	0.615	Valid	Preserved
		SQ17	0.659	Valid	Preserved
		SQ18	0.617	Valid	Preserved
		SQ1	<0.40	Invalid	Excluded
		SQ2	<0.40	Invalid	Excluded
		SQ4	<0.40	Invalid	Excluded
		SQ19	<0.40	Invalid	Excluded
		SQ20	<0.40	Invalid	Excluded
		SQ21	<0.40	Invalid	Excluded
		SQ22	<0.40	Invalid	Excluded
2.	Digital Banking (DB)	DB1	0.493	Valid	Preserved
		DB2	0.704	Valid	Preserved
		DB3	0.711	Valid	Preserved
		DB4	0.742	Valid	Preserved
		DB5	0.674	Valid	Preserved
3.	Customer Engagement (CE)	CE1	0.673	Valid	Preserved

No.	Variable	Item	Factor Loading	Criteria (≥0.40)	Description
		CE2	0.626	Valid	Preserved
		CE3	0.727	Valid	Preserved
		CE4	<0.40	Invalid	Excluded
		CE5	<0.40	Invalid	Excluded
4.	Customer Loyalty (CL)	LN1	0.561	Valid	Preserved
		LN2	0.808	Valid	Preserved
		LN3	0.791	Valid	Preserved
		LN4	0.681	Valid	Preserved
		LN5	0.766	Valid	Preserved

Source: Primary data processed, 2025

The validity test results indicate that the majority of indicators in each variable have met the factor loading criterion of 0.40 or above, so they are able to represent the constructs being measured. The service quality variable has 15 valid indicators and 7 indicators were eliminated because they were not yet able to explain the construct optimally, while all digital banking indicators were declared valid, indicating that the instrument has been able to measure perceptions of digital service usage well. For the customer engagement variable, only three indicators met the criterion so two indicators were eliminated, indicating the presence of items that were less representative in measuring customer engagement. Meanwhile, all customer loyalty indicators were declared valid with good measurement capability. Overall, these results indicate that the research instrument has an adequate level of validity and is therefore suitable for use in further analysis.

Reliability Test

Table 4. Reliability Test Outcomes

No.	Variable	Item	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted	Description
1.	Service Quality	SQ3	0.354	0.876	Reliable
		SQ5	0.383	0.880	Reliable
		SQ6	0.636	0.865	Reliable
		SQ7	0.682	0.861	Reliable
		SQ8	0.651	0.863	Reliable
		SQ9	0.529	0.870	Reliable
		SQ10	0.397	0.875	Reliable
		SQ11	0.476	0.872	Reliable
		SQ12	0.547	0.868	Reliable
		SQ13	0.641	0.865	Reliable
		SQ14	0.594	0.866	Reliable
		SQ15	0.586	0.868	Reliable
		SQ16	0.506	0.870	Reliable
		SQ17	0.588	0.866	Reliable
		SQ18	0.558	0.868	Reliable
2.	Digital Banking	DB1	0.302	0.696	Sufficient
		DB2	0.475	0.630	Reliable
		DB3	0.482	0.624	Reliable
		DB4	0.527	0.602	Reliable
		DB5	0.444	0.641	Reliable
3	Customer Engagement	CE1	0.348	0.352	Not Strong
		CE2	0.243	0.529	Weak
		CE3	0.372	0.317	Not Strong

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No.	Variable	Item	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted	Description
4	Customer Loyalty	LN1	0.392	0.779	Sufficient
		LN2	0.663	0.679	Reliable
		LN3	0.619	0.697	Reliable
		LN4	0.475	0.748	Reliable
		LN5	0.580	0.718	Reliable

Source: Primary data processed, 2025

The reliability test uses Cronbach's Alpha with a minimum value of 0.70 as the threshold for good reliability, while a minimum Corrected Item-Total Correlation value of 0.30 is used to evaluate the contribution of each indicator to the construct being measured. The test results show that the Service Quality variable has the highest level of reliability with a Cronbach's Alpha value of 0.877, where all indicators meet the criterion and demonstrate good internal consistency. The Customer Loyalty variable also shows good reliability with a Cronbach's Alpha value of 0.769, indicating that its indicators are able to measure the construct consistently. Meanwhile, the Digital Banking variable obtained a Cronbach's Alpha value of 0.690, which is considered sufficiently reliable as it is close to the recommended minimum threshold, although indicator DB1 has the lowest Corrected Item-Total Correlation value of 0.302. Unlike the other variables, Customer Engagement obtained a Cronbach's Alpha value of 0.503, indicating a relatively weak level of internal consistency. In addition, several indicators also have low Corrected Item-Total Correlation values, indicating that those indicators have not been fully able to represent the construct consistently. These results indicate that the Customer Engagement construct has a lower level of reliability compared to other variables in the study, so the measurement strength of that construct is relatively more limited. Nevertheless, the Customer Engagement variable is still used in the research model because it plays a role as an intervening variable in explaining the relationship between service quality, digital banking, and customer loyalty.

Normality Test

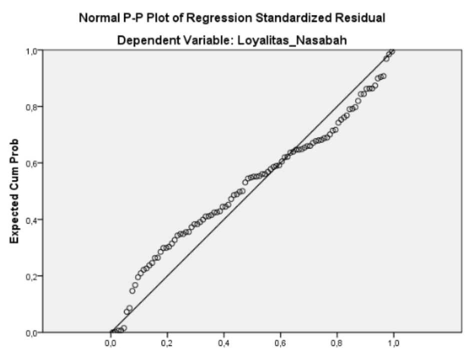

Figure 2. Normality Test with Scatterplot Graph

The normality test results indicate that the research data has met the normality assumption, as shown by the pattern of data distribution that follows the diagonal line and does not form any meaningful deviation. This condition indicates that the residual distribution in the research model tends to be normal, so the model is suitable for further analysis as there are no normality problems that could affect the accuracy of the estimation of the research results.

Kolmogorov-Smirnov Test

Table 5. Kolmogorov-Smirnov Test Outcomes

One-Sample Kolmogorov-Smirnov Test

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	Unstandardized Predicted Value
N	100
Normal Parameters (a,b) Mean	30.7900000
Std. Deviation	2.20937902
Most Extreme Differences Absolute	.066
Positive	.042
Negative	-.066
Kolmogorov-Smirnov Z	.660
Asymp. Sig. (2-tailed)	.776

Test distribution is Normal. b. Calculated from data.

The normality test was conducted using the One Sample Kolmogorov-Smirnov test on the unstandardized predicted values from 100 respondents. The test results show a significance value of 0.776, which is above the significance threshold of 0.05. This indicates that the research data does not deviate from a normal distribution, so the normality assumption has been fulfilled. Therefore, the data is considered suitable for analysis using parametric statistical techniques in the subsequent testing stage.

Multicollinearity Test

Table 6. Multicollinearity Test Outcomes

Model	Collinearity Statistics	
	Tolerance	VIF
Service Quality (X1)	0.986	1.014
Digital Banking (X2)	0.748	1.337
Customer Engagement (Y1)	0.741	1.350

Source: Primary Data processed, 2025

Tolerance and VIF statistics were employed to assess multicollinearity. The findings revealed that Service Quality exhibited a Tolerance value of 0.986, accompanied by a VIF of 1.014. Digital Banking demonstrated a Tolerance of 0.748 alongside a VIF of 1.337, while Customer Engagement showed a Tolerance score of 0.741 with an associated VIF of 1.350. Each variable met the specified thresholds namely, Tolerance exceeding 0.10 and VIF remaining below 10 indicating that the dataset shows no signs of multicollinearity. Consequently, the regression model is considered appropriate for subsequent analysis.

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Heteroscedasticity Test

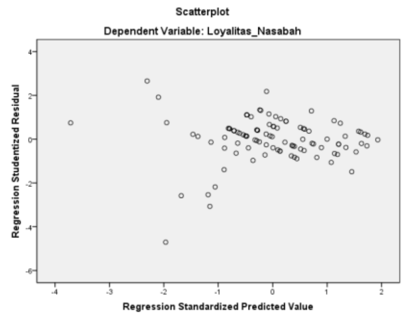

Figure 3. Heteroscedasticity Test with Scatterplot Graph

A scatterplot comparing studentized residuals and standardized predicted values was applied to test for heteroscedasticity. According to the results, the residuals were distributed randomly around the zero axis without forming any specific or organized pattern. This confirms that the homoscedasticity assumption holds true. Consequently, the regression model is declared fit to proceed into the hypothesis testing phase.

Multiple Linear Regression Analysis

All multiple linear regression analyses were performed by the researchers utilizing SPSS for Windows version 16.0. The investigation focused on hypotheses H1 through H5, which explore the effects of Service Quality (X1) and Digital Banking (X2), with Customer Engagement (Y1) acting as a mediating variable and Customer Loyalty (Y2) as DV. A summary of the findings from the initial regression equation is provided in the table below.

Regression Equation Stage 1

Table 7. Regression Equation Stage 1

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.592[a]	.351	.337	.67025

a. Predictors: (Constant), Digital_Banking, Service_Quality

ANOVA[a]

Model	Sum of Squares	df	Mean Square	F	Sig.
1 Regression	23.517	2	11.759	26.174	.000[b]
Residual	43.576	97	.449		
Total	67.093	99			

a. Dependent Variable: Customer_Engagement
b. Predictors: (Constant), Digital_Banking, Service_Quality

Coefficients[a]

Model	Unstandardized Coefficients B	Std. Error	Standardized Coefficients Beta	T	Sig.
1 (Constant)	1.076	.994		1.083	.281
Service_Quality	.112	.136	.067	.820	.414
Digital_Banking	.667	.093	.586	7.162	.000

a. Dependent Variable: Customer_Engagement

The regression equation representing Model 1 is outlined below:

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$$Y1 = 0.112X1 + 0.667X2 + e$$

The results illuminate that service quality has not yet become the main factor in increasing customer engagement, because improvements in service quality have not been able to significantly drive customer involvement. Conversely, digital banking has proven to play a more dominant role, where improvements in digital service quality are able to increase customer involvement because ease of access, speed, and convenience of digital services are increasingly becoming primary needs in banking activities. In addition, service quality and digital banking together are able to explain 33.7% of the variation in customer engagement, which indicates that customer involvement is not only influenced by these two factors, but also by other factors outside the research model such as customer experience, trust, and value perception.

Regression Equation Stage 2

Table 8. Regression Equation Stage 2

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.790[a]	.624	.612	.374

a. Predictors: (Constant), Customer_Engagement, Service_Quality, Digital_Banking

ANOVA[a]

Model	Sum of Squares	df	Mean Square	F	Sig.
1 Regression	22.278	3	7.426	53.099	.000[b]
Residual	13.426	96	.140		
Total	35.704	99			

a. Dependent Variable: Customer_Loyalty
b. Predictors: (Constant), Customer_Engagement, Service_Quality, Digital_Banking

Coefficients[a]

Model	Unstandardized Coefficients B	Std. Error	Standardized Coefficients Beta	t	Sig.
1 (Constant)	-.188	.558		-.337	.737
Digital_Banking	.022	.064	.026	.340	.735
Service_Quality	.940	.076	.773	12.304	.000
Customer_Engagement	.070	.057	.096	1.232	.221

a. Dependent Variable: Customer_Loyalty

The regression equation for the second model is expressed through the following equation:

$$Y2 = 0.022X1 + 0.940X2 + 0.070Y1 + e$$

The analysis results indicate that service quality has not yet been able to become the main factor in increasing customer loyalty because improvements in service quality do not directly drive loyalty in a significant way. Conversely, digital banking has proven to be the most influential factor on loyalty, indicating that ease of access, speed of service, and convenience of digital transactions are more decisive in determining customers' decisions to remain loyal to the bank. Meanwhile, customer engagement has a positive direction of influence, but has not been strong enough to directly increase customer loyalty. Overall, the research model has a fairly good ability to explain customer loyalty, although there are still other factors outside the study that also influence customer loyalty.

T-Test

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The hypothesis testing results indicate that Service Quality is not able to significantly increase Customer Engagement. This finding indicates that the quality of service provided has not yet become the main factor driving customer involvement with the bank, so improvements in service aspects alone may not necessarily be able to strengthen customer interaction and participation in a more active manner. Conversely, Digital Banking has proven to have a positive influence on Customer Engagement, indicating that ease of access, speed of digital services, and convenience of using digital banking platforms are able to increase customer involvement in using banking services.

Furthermore, Service Quality has proven to have a positive influence on Customer Loyalty, indicating that good service quality remains an important factor in building customer loyalty toward the bank. However, Digital Banking does not show a direct influence on Customer Loyalty, so the use of digital services alone is not sufficient to create customer loyalty without the support of other factors. In addition, Customer Engagement has also not been proven to increase Customer Loyalty, indicating that a high level of customer involvement does not necessarily directly drive the formation of loyalty toward the bank.

Sobel Test

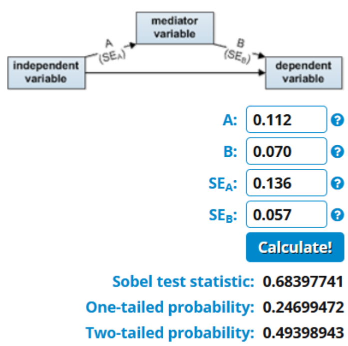

Figure 4. Sobel Test Results

Source: Processed primary data, 2025

The mediation test results indicate that Customer Engagement is not able to serve as a bridging mechanism for the influence of Service Quality on Customer Loyalty. This indicates that improvements in service quality do not automatically increase customer loyalty through customer involvement. Although service quality has a positive relationship with customer engagement and customer engagement also has a positive relationship with customer loyalty, the indirect influence formed is still too weak to produce a significant mediation effect. Therefore, Customer Engagement does not serve as an intervening variable in the relationship between Service Quality and Customer Loyalty, so hypothesis H6 is rejected.

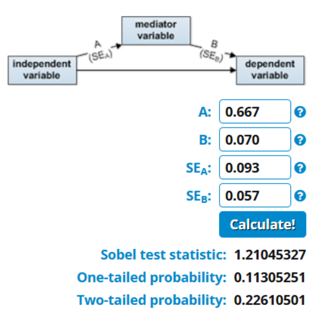

Figure 5. Sobel Test Results

Source: Primary data processed, 2025

Based on the Sobel test results, a statistical value of 0.6839 with a two-tailed p-value of 0.4939, which is greater than the significance level of 0.05, indicates that the indirect effect being tested is not statistically significant. This means that the influence of Digital Banking on Customer Loyalty through Customer Engagement is not empirically proven in this research model. Although structurally there is a relationship path from Digital Banking to Customer Engagement ($\beta = 0.667$) and from Customer Engagement to Customer Loyalty ($\beta = 0.070$), the very small coefficient on the second path indicates that Customer Engagement is not strong enough to transmit the influence of Digital Banking on customer loyalty. Therefore, Customer Engagement cannot serve as a mediating variable in that relationship, so hypothesis H7 is rejected.

DISCUSSION

The research results indicate that service quality has a positive but insignificant influence on customer engagement ($\beta = 0.112$; $p = 0.414$). This finding cannot be understood merely as a lack of support for the hypothesis, but rather reflects a shift in the mechanism of customer involvement formation in the banking industry. In the context of Bank BNI KC Pekalongan, customer involvement is no longer primarily influenced by conventional face-to-face service quality, but rather by the intensity of interaction through digital channels. This occurs because everyday banking activities have shifted to digital platforms, so direct service experience is no longer the main source of engagement formation. Accordingly, customer involvement is more frequently formed from the frequency of routine digital system usage rather than from the quality of conventional service interactions (Hamdat et al., 2020; Lakchan & Samaraweera, 2023). This shift provides an important basis for understanding why service quality is no longer the main determinant in forming engagement.

In line with this shift, digital banking has proven to have a positive and significant influence on customer engagement ($\beta = 0.667$; $p = 0.000$). This finding shows that customer involvement is now formed primarily through the ease, speed, and flexibility of digital services. However, it is important to note that the engagement formed is not emotional in nature, but rather tends toward usage-based engagement. Customers are involved due to recurring functional needs in daily transaction activities, not because of a psychological attachment to the bank. Therefore, digital banking strengthens engagement through increased interaction intensity, but at a level that remains utilitarian (Toor et al., 2016; Khan et al., 2009; Yadav & Rai, 2019). This functional character of engagement then becomes important in explaining why increased engagement does not always result in loyalty.

Stemming from this character of engagement, the research results show that service quality actually has a very strong and significant influence on customer loyalty ($\beta = 0.940$; $p = 0.000$). This finding confirms that customer loyalty is not formed by the frequency of digital service usage, but rather by relational experiences that are emotional in nature. In the banking context, loyalty is more greatly influenced by trust, empathy, and the bank's ability to provide solutions to customer problems. This shows that service quality holds a fundamental position because it touches on psychological aspects that cannot be fully replaced by digital technology (Sikdar & Makkad, 2015; Astrini, 2021; Nimako et al., 2013). Therefore, although digital banking increases interaction, loyalty remains determined by the quality of deeper service experiences.

The consistency of this pattern is also seen in the insignificant influence of digital banking on customer loyalty ($\beta = 0.022$; $p = 0.735$). This finding indicates that although digital banking is able to improve the ease and frequency of interaction, this is not sufficient to form customer loyalty. This condition can be explained by the fact that digital banking has become a basic standard in banking services, so it is no longer perceived as a differentiating factor between banks. Accordingly, the contribution of digital banking to loyalty becomes limited because it only operates at a functional level, while loyalty requires stronger relational dimensions such as trust and emotional attachment (Mawarni, 2021; Sarimuda, 2022; Syahran et al., 2022). This is consistent with the earlier finding that increased digital-based interaction does not always transform into long-term commitment.

A similar pattern is also seen in the insignificant relationship between customer engagement and customer loyalty ($\beta = 0.070$; $p = 0.221$). This finding shows that the engagement formed still exists at the level of behavioral engagement, that is, involvement based on service usage activity rather than on affective attachment. Customers may actively use digital services repeatedly, but these activities do not yet reflect the existence of emotional commitment to a particular bank. Therefore, engagement has not yet developed into a form of attachment strong enough to influence loyalty, because loyalty requires deeper psychological dimensions than merely the intensity of service usage (Al-Dmour et al., 2019; Mulia et al., 2020; Pernamawati et al., 2023). This condition also explains why the relationship between engagement and loyalty is not formed significantly.

The mediation test results indicate that customer engagement is not able to mediate the relationship between service quality and customer loyalty (Sobel test = 0.6839; p = 0.4939). This finding indicates that the influence of service quality on loyalty is direct without first going through a customer involvement mechanism. Therefore, the mediation path formed through path coefficients A and B does not produce a significant indirect effect. This reinforces that in the context of this study, service quality plays a more dominant role in forming customer loyalty compared to the intermediary role of customer engagement (Lutfi, 2024; Mawarni, 2021), the mediation path formed through path coefficients A and B does not produce an influential indirect effect. This shows that Service Quality has a more direct influence on Customer Loyalty.

The same pattern is also seen in the relation between digital banking and customer loyalty mediated by customer engagement. Based on the Sobel test result of 0.6839 with a p-value of 0.4939, it was found that customer engagement does not serve as a significant mediating variable in that relationship. Thus, the hypothesis stating the existence of a mediating role cannot be accepted. Although theoretically digital banking is considered capable of driving customer engagement which then contributes to the formation of customer loyalty (Lie et al., 2019; Masadah et al., 2020), the empirical findings show that this path is not proven significant in the context of this study. This indicates that the influence of digital banking on loyalty is more direct in nature, without going through an increase in customer involvement as an intermediary.

CONCLUSION

Based on the results of the analysis and hypothesis testing, this study shows that service quality has not yet been able to significantly increase customer engagement, although it still has a positive direction of relationship. Conversely, digital banking has proven to be able to increase customer engagement, but neither variable shows a significant direct influence on customer loyalty. Further, customer engagement itself has also not been proven to serve as a mediating variable in the relationship between service quality and digital banking on customer loyalty. These findings indicate that in the context of this study, customer loyalty is more greatly formed through the direct influence of service quality rather than through indirect customer involvement. Hence, customer engagement has not yet become an effective strategic pathway for bridging improvements in loyalty. Practically, these results implies that efforts to increase customer loyalty will be more effective if focused on directly strengthening service quality, particularly in terms of speed, accuracy, and consistency of service. Meanwhile, the development of digital banking and customer engagement remains vital, but plays more of a supporting role rather than as the primary driver of loyalty.

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