

The Effect of E-Service Quality And E-Trust On E-Satisfaction And E-Loyalty on Users of Livin' by Mandiri Mobile Banking Users in Indonesia

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Abstract:

The development of digital technology and mobile-based banking services has encouraged changes in people's behavior in conducting financial transactions. Mobile banking has become one of the most widely used digital services because it offers convenience, speed, security, and flexibility in carrying out banking activities. Livin' by Mandiri, a mobile banking application owned by PT Bank Mandiri (Persero) Tbk, is one form of digital transformation in the banking sector that continues to evolve to meet the transaction needs of modern society. This study aims to analyze the influence of e-service quality and e-trust on e-satisfaction and their impact on e-loyalty among users of the Livin' by Mandiri mobile banking application in Indonesia.

This study employed a survey method with a quantitative approach. Data were collected through questionnaires distributed to active users of the Livin' by Mandiri application in Indonesia. The sample consisted of 300 respondents spread across 12 regional areas in Indonesia. The data analysis technique used in this study was Structural Equation Modeling (SEM) with the assistance of Lisrel 8.80 software.

The results of the study indicate that the dimensions of e-service quality, consisting of security, reliability, convenience, and responsiveness, have a positive and significant effect on e-satisfaction and e-trust among users of the Livin' by Mandiri application. In addition, e-trust has a positive and significant effect on e-satisfaction and e-loyalty. E-satisfaction also has a positive and significant effect on e-loyalty among users of the Livin' by Mandiri application. These findings indicate that electronic service quality and user trust are important factors in increasing customer satisfaction and loyalty in mobile banking services. This study is expected to provide insights into the importance of e-service quality and e-trust in building e-satisfaction and e-loyalty in mobile banking services. Furthermore, the findings provide managerial implications for PT Bank Mandiri (Persero) Tbk in improving digital service quality, strengthening user trust, and maintaining customer loyalty amid increasingly intense competition in the digital banking industry.

Key Word: e-service quality, e-trust, e-satisfaction, e-loyalty, mobile banking, Livin' by Mandiri, security, reliability, convenience, responsiveness.

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I. Introduction

The rapid development of digital technology has accelerated the transformation of the banking industry and encouraged the widespread adoption of digital banking services. In Indonesia, mobile banking (m-banking) has become the most frequently used digital banking channel because it offers convenience, speed, and accessibility. According to Bank Indonesia (2024), mobile banking recorded the highest transaction volume among digital banking services, indicating the increasing reliance of customers on digital financial transactions. Livin' by Mandiri, a mobile banking application developed by Bank Mandiri, has experienced significant growth since its launch in 2021. The number of users increased from 15.8 million in 2022 to 29.3 million in 2024. However, despite this growth, Livin' by Mandiri remains behind several competitors, such as BCA Mobile and BRImo, in terms of customer preference and brand performance. This phenomenon suggests that increasing numbers of users do not necessarily indicate stronger customer loyalty.

In the digital banking industry, customer loyalty (e-loyalty) is influenced by several factors, particularly electronic service quality (e-service quality), electronic trust (e-trust), and electronic satisfaction (e-satisfaction). According to Ashiq and Hussain (2024), e-service quality consists of four dimensions, namely reliability, responsiveness, security, and convenience. High service quality is expected to enhance customer trust and satisfaction, which subsequently foster customer loyalty. Several previous studies have demonstrated positive relationships among these variables. Suariedewi (2020) found that e-service quality positively affects e-

trust, while e-trust significantly influences e-satisfaction and e-loyalty. Similarly, Pasaribu (2022) reported that service quality significantly affects customer satisfaction, trust, and loyalty. However, contradictory findings were reported by Ashiq and Hussain (2024), who found that some dimensions of e-service quality had negative effects on e-satisfaction. Furthermore, Widjaja (2015) revealed that e-satisfaction did not significantly influence e-loyalty. These inconsistent findings indicate the existence of a theoretical gap. In addition, previous studies have mainly focused on e-commerce platforms, whereas studies examining these relationships in the context of mobile banking, particularly Livin' by Mandiri, remain limited, indicating an empirical gap. Therefore, this study aims to analyze the effects of e-service quality dimensions (security, reliability, convenience, and responsiveness) on e-satisfaction and e-trust, as well as the effects of e-trust and e-satisfaction on e-loyalty among Livin' by Mandiri users in Indonesia. The findings are expected to contribute to the literature on digital banking services and provide practical implications for improving customer loyalty in the increasingly competitive banking industry.

II. Literature Review

Relationship Marketing Theory

Relationship marketing emphasizes the development of long-term and mutually beneficial relationships between companies and customers to enhance customer retention and business sustainability (Kotler et al., 2019). According to Palmatier (2008), trust and commitment are the two fundamental pillars of relationship marketing. Trust generally precedes commitment and serves as the basis for establishing long-term relationships.

This study adopts the perspective of the Commitment-Trust Theory of Relationship Marketing proposed by Morgan and Hunt (1994), which states that trust and commitment are key mediating variables in maintaining successful relational exchanges. Customers who perceive a company as trustworthy are more likely to develop commitment and maintain long-term relationships. In the context of digital banking, customer trust plays a crucial role because financial services are consumed before they are experienced. Therefore, trust is expected to foster customer satisfaction and ultimately strengthen loyalty.

E-Service Quality, E-Trust, E-Satisfaction, and E-Loyalty

E-service quality refers to the capability of an online platform to provide efficient and effective services through electronic channels (Zeithaml et al., 2013). High-quality electronic services enhance customer experiences and contribute to long-term customer relationships (Olaleye, 2021). Ashiq and Hussain (2024) proposed four major dimensions of e-service quality, namely security, reliability, responsiveness, and convenience.

Security and E-Satisfaction

Security represents the protection of customers' personal and financial information from unauthorized access and cyber threats (Sarjita, 2020). Security has been recognized as an important determinant of online service quality because it reduces customers' perceived risk and increases confidence in using digital services. Previous studies demonstrated that security positively affects customer satisfaction (Rita et al., 2019; Al-Khayyal et al., 2020), although Ashiq and Hussain (2024) reported insignificant findings. Therefore, the following hypothesis is proposed:

H_{1a}: Security positively influences e-satisfaction.

Reliability and E-Satisfaction

Reliability refers to the ability of an online platform to provide accurate, dependable, and consistent services (Narteh, 2015). Reliable systems ensure that transactions are completed correctly and services remain available whenever customers need them. Previous studies found that reliability significantly contributes to customer satisfaction (Al-Hawary & Al-Smeran, 2017; Ashiq & Hussain, 2024). Accordingly, the following hypothesis is formulated:

H_{1b}: Reliability positively influences e-satisfaction.

Convenience and E-Satisfaction

Convenience reflects the ease and simplicity experienced by customers when using electronic services. User-friendly systems reduce effort and facilitate transaction processes (Narteh, 2015). Prior studies revealed that convenience enhances customer satisfaction (Al-Dweeri et al., 2018; Rita et al., 2019), although inconsistent findings were reported by Ashiq and Hussain (2024). Therefore, the following hypothesis is proposed:

H_{1c}: Convenience positively influences e-satisfaction.

Responsiveness and E-Satisfaction

Responsiveness describes the willingness of service providers to assist customers promptly and effectively (Ighomereho et al., 2022). Timely responses and efficient complaint handling improve customers' perceptions of service quality and satisfaction. Previous studies confirmed the positive influence of responsiveness on customer satisfaction (Rita et al., 2019; Tanne et al., 2022), despite contradictory evidence reported by Ashiq and Hussain (2024). Hence, the following hypothesis is developed:

H_{1d}: Responsiveness positively influences e-satisfaction.

Security and E-Trust

Security is a critical factor in fostering trust in digital environments because customers rely heavily on the platform's ability to protect their personal and financial information. Studies by Al-Adwan et al. (2019), Al-Dweeri et al. (2018), and Rita et al. (2019) found that security positively affects electronic trust. Therefore, the following hypothesis is proposed:

H_{2a}: Security positively influences e-trust.

Reliability and E-Trust

Reliability enhances customers' confidence in electronic platforms by ensuring accurate and dependable service performance. Previous studies consistently reported that reliability contributes significantly to trust formation (Lee & Lin, 2005; Rita et al., 2019). Thus, the following hypothesis is formulated:

H_{2b}: Reliability positively influences e-trust.

Convenience and E-Trust

Convenience contributes to customers' trust by providing easy navigation, accessible information, and effortless transaction processes. Research conducted by Al-Adwan et al. (2019), Al-Dweeri et al. (2018), and Rita et al. (2019) demonstrated that convenience positively affects electronic trust. Therefore, the following hypothesis is proposed:

H_{2c}: Convenience positively influences e-trust.

Responsiveness and E-Trust

Responsiveness reflects a firm's ability to address customer concerns and provide timely assistance. Effective communication and problem resolution strengthen customers' confidence in the service provider. Previous studies reported that responsiveness positively influences e-trust (Al-Adwan et al., 2019; Rita et al., 2019). Thus, the following hypothesis is formulated:

H_{2d}: Responsiveness positively influences e-trust.

E-Trust and E-Satisfaction

E-trust refers to consumers' confidence in the reliability and integrity of online service providers (Hanifati & Samiono, 2018). Customers who trust a platform tend to perceive lower risk and enjoy more satisfying experiences. Several studies revealed that e-trust positively influences e-satisfaction (Al-Adwan et al., 2019; Al-Khayyal et al., 2020), although Ashiq and Hussain (2024) reported insignificant relationships. Hence, the following hypothesis is proposed:

H₃: E-trust positively influences e-satisfaction.

E-Trust and E-Loyalty

Trust is considered one of the most important drivers of customer loyalty in online environments. Customers who trust digital platforms are more likely to continue using the service and recommend it to others. Previous studies demonstrated a positive relationship between e-trust and e-loyalty (Pasaribu et al., 2022; Al-Mu'ani et al., 2024; Ashiq & Hussain, 2024). Therefore, the following hypothesis is formulated:

H₄: E-trust positively influences e-loyalty.

E-Satisfaction and E-Loyalty

E-satisfaction reflects customers' overall evaluation of their online experiences (Szymanski & Hise, 2000). Satisfied customers are more likely to revisit the platform, engage in repeat transactions, and develop long-term loyalty. Prior studies consistently found that e-satisfaction positively affects e-loyalty (Fernandes et al., 2018; Pasaribu et al., 2022; Ashiq & Hussain, 2024). Accordingly, the following hypothesis is proposed:

H₅: E-satisfaction positively influences e-loyalty.

Mobile Banking

Mobile banking refers to banking services that enable customers to perform financial transactions through smartphones without visiting physical branches (Akturan & Tezcan, 2012). Mobile banking provides convenience, accessibility, flexibility, and time efficiency, thereby improving customers' experiences (Malaquias & Hwang, 2016). Consequently, maintaining high levels of electronic service quality, trust, and satisfaction is essential for strengthening customer loyalty toward mobile banking applications.

Theoretical Framework

Grounded in the Relationship Marketing framework and the Commitment–Trust Theory (Morgan & Hunt, 1994), this study conceptualizes e-service quality dimensions as exogenous stimuli that shape consumers' internal cognitive and affective evaluations in digital service environments. Specifically, security, reliability, convenience, and responsiveness are posited as key determinants that influence users' perceptions of e-trust and e-satisfaction within mobile banking contexts.

These internal states are further theorized to function as mediating mechanisms that translate service quality perceptions into behavioral outcomes, particularly e-loyalty. Accordingly, the proposed framework elucidates how digitally mediated service attributes generate trust-based and satisfaction-based evaluations, which subsequently reinforce long-term relational continuity between users and mobile banking service providers.

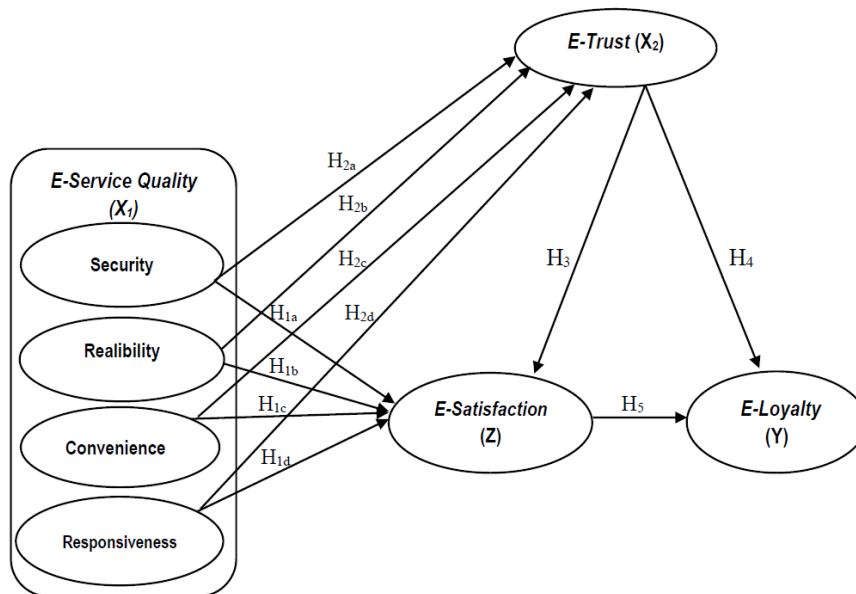


Figure 1. Research Framework

III. Material And Methods

Research Design

This study employed a quantitative research approach with a causal design to examine the relationships among e-service quality dimensions, e-trust, e-satisfaction, and e-loyalty in the context of Livin' by Mandiri mobile banking users. A quantitative approach was chosen because it enables the measurement of variables and the testing of hypotheses using statistical analysis. The study applied a survey method, in which primary data were collected directly from respondents through structured questionnaires. All items were measured using a five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree).

Research Instrument

The research instrument consisted of a structured questionnaire adapted from previous studies. E-service quality dimensions, including security, reliability, convenience, and responsiveness, were adopted from Ashiq and Hussain (2024). The measurement items for e-trust, e-satisfaction, and e-loyalty were adapted from Al-Khayyal (2020). Table 1 presents the measurement indicators used in this study.

Table 1. Measurement Indicators

Variables	Indicators	Adaptation Source
Security	Protection of personal and financial information; privacy protection; transaction security; payment security features	Ashiq & Hussain (2024)
Reliability	Availability of reliable information; accuracy and completeness of information; provision of banking product information; updated information	Ashiq & Hussain (2024)
Convenience	Ease of finding services; accessibility anytime and anywhere; ease of transaction; availability of customer contact information	Ashiq & Hussain (2024)
Responsiveness	Readiness to respond to users; prompt response to complaints; willingness to solve problems; information support	Ashiq & Hussain (2024)
E-Trust	Ability to support digital transactions; competence; confidence in digital capabilities; qualification in digital banking services	Al-Khayyal (2020)
E-Satisfaction	Satisfaction with transaction decisions; satisfaction with using Livin' by Mandiri; overall positive experience	Al-Khayyal (2020)
E-Loyalty	Positive word-of-mouth; recommendation intention; intention to continue using the application; preference for future transactions	Al-Khayyal (2020)

Population and Sample

The population of this study comprised all users of Livin' by Mandiri mobile banking in Indonesia. Since the exact population size is unknown, a non-probability sampling technique with purposive sampling was employed. Respondents were selected based on specific criteria, namely active users of Livin' by Mandiri who had experience conducting digital banking transactions. Following the recommendation of Hair et al. (2022), the minimum sample size for Structural Equation Modeling (SEM) should be five to ten times the number of indicators. Since this study employed 30 indicators, the minimum sample size ranged from 150 to 300 respondents. Accordingly, this study involved 300 respondents distributed proportionally across twelve regional areas in Indonesia.

Data Collection Methods

Primary data were collected using an online questionnaire developed through Google Forms. The questionnaire was distributed via social media platforms, including WhatsApp, Instagram, and Facebook. Data collection was conducted over a three-month period from March to May 2026.

Data Analysis Methods

To evaluate the proposed research model, all collected data were analyzed using descriptive statistical techniques and Structural Equation Modeling (SEM). Descriptive statistics were used to describe respondent characteristics and variable distributions. Furthermore, SEM with LISREL 8.80 was employed to assess the measurement model and structural model, examine the validity and reliability of constructs, evaluate model fit, and test the proposed hypotheses. The measurement model was assessed through convergent validity, Average Variance Extracted (AVE), Composite Reliability (CR), and Cronbach's Alpha. Meanwhile, the structural model was evaluated by examining path coefficients, t-values, coefficient of determination (R²), and goodness-of-fit indices. A hypothesis was considered supported when the t-value exceeded the critical value of 1.96 at the 5% significance level.

IV. Result

Descriptive Statistics

Table 2: Descriptive Statistics of Research Items

Code	STS (1)	TS (2)	N (3)	S (4)	SS (5)	Total	Mean	G-Mean
<i>S (Security), R (Reliability), C (Convenience), RS (Responsiveness)</i>								
S1	8	13	46	128	105	300	4,03	3,98
S2	3	12	48	149	88		4,02	
S3	5	7	60	132	96		4,02	
S4	9	13	46	170	62		3,87	
R1	4	10	61	140	85		3,97	3,95
R2	7	13	59	126	95		3,96	
R3	4	9	61	131	95		4,01	
R4	3	8	64	137	88		3,99	
C1	6	19	74	128	69		3,76	3,80
C2	3	19	45	148	85		3,96	
C3	4	20	59	146	71		3,87	
C4	3	22	90	107	78		3,63	
RS1	1	8	49	146	96	4,09	4,02	
RS2	3	7	62	139	89	4,01		
RS3	1	9	72	139	79	3,95		

RS4	0	11	57	143	89		4,03	
<i>ET (e-trust), ECS (e-satisfaction), ECL (e-loyalty)</i>								
ET1	9	16	31	206	38	300	3,83	4,17
ET2	1	5	21	189	84		4,17	
ET3	0	3	21	170	106		4,26	
ET4	0	4	19	187	90		4,21	
ET5	0	4	21	165	110		4,27	
ET6	0	4	25	136	135		4,34	
ECS1	3	5	11	138	143		4,38	4,09
ECS2	1	6	24	186	83		4,15	
ECS3	4	6	69	194	27		3,78	
ECL1	6	12	7	84	191		3,96	4,22
ECL2	1	14	13	151	121		3,87	
ECL3	9	11	40	177	63		3,63	
ECL4	0	9	21	168	102		4,09	
ECL5	0	10	18	150	122		4,01	

Validity and Realibility

Seven latent constructs were examined in this study, namely security, reliability, convenience, responsiveness, e-trust, e-satisfaction, and e-loyalty. Prior to assessing the structural relationships among the constructs, the measurement model was evaluated to ensure the validity and reliability of the indicators. Convergent validity was assessed using the Standardized Loading Factor (SLF), with a minimum acceptable threshold of 0.50. The results indicated that all measurement items achieved loading factor values above the recommended threshold, demonstrating that the indicators adequately reflected their respective latent constructs.

Reliability and construct validity were further assessed using Construct Reliability (CR) and Average Variance Extracted (AVE). Following the recommendations of Hair et al. (2022), a construct is considered reliable when the CR value exceeds 0.70 and demonstrates adequate convergent validity when the AVE value is greater than 0.50. The findings revealed that all constructs satisfied these criteria, indicating satisfactory internal consistency, reliability, and explanatory power of the measurement model. Therefore, the measurement instruments used in this study were deemed appropriate for subsequent structural model analysis.

**Table 3: Results of SLF and AVE Validity Test ≥ 0.50
Cronbach's Alpha Reliability Test ≥ 0.50**

Variable	Dimension	Indicator	SLF	AVE	Cronbach's Alpha	Composite Reliability	Results
<i>E-Service Quality</i>	<i>Security</i>	S1	0,84	0,67	0,89	0,89	Valid & Reliable
		S2	0,75				
		S3	0,79				
		S4	0,89				
	<i>Realibility</i>	R1	0,71	0,54	0,82	0,82	Valid & Reliable
		R2	0,72				
		R3	0,76				
		R4	0,74				
	<i>Convenience</i>	C1	0,81	0,60	0,85	0,86	Valid & Reliable
		C2	0,80				
		C3	0,74				
		C4	0,75				
<i>Responsiveness</i>	RS1	0,64	0,62	0,87	0,86	Valid & Reliable	
	RS2	0,68					
	RS3	0,89					
	RS4	0,90					
<i>E-Trust</i>	ET1	0,70	0,58	0,80	0,80	Valid & Reliable	
	ET2	0,75					
	ET3	0,66					
	ET4	0,86					
	ET5	0,76					
	ET6	0,82					
<i>E-Satisfaction</i>	ECS1	0,86	0,62	0,82	0,83	Valid &	

	ECS2	0,77				Reliable
	ECS3	0,72				
<i>E-Loyalty</i>	ECL1	0,84	0,60	0,88	0,88	Valid & Reliable
	ECL2	0,79				
	ECL3	0,79				
	ECL4	0,71				
	ECL5	0,73				

Overall Model Fit

The overall goodness-of-fit assessment demonstrates that most fit indices meet the recommended cut-off values, whereas several indices fall slightly below the suggested thresholds. Despite these minor deviations, the model exhibits acceptable levels of absolute, incremental, and parsimonious fit, indicating an adequate correspondence between the proposed model and the observed data. Consequently, the structural model can be considered statistically acceptable and suitable for further hypothesis testing, providing sufficient evidence to explain the relationships among security, reliability, convenience, responsiveness, e-trust, e-satisfaction, and e-loyalty.

Table 4: Overall Model Fit Criteria Test Results

Goodness of Fit	Cut-off value	Results	
<i>Absolute Fit Measures</i>			
RMR	≤ 0,05	0,022	<i>Good fit</i>
RMSEA	≤ 0,08	0,011	<i>Good fit</i>
GFI	≥ 0,90	0,92	<i>Good fit</i>
<i>Incremental Fit Measures</i>			
AGFI	≥ 0,90	0,90	<i>Good fit</i>
NFI	≥ 0,90	0,98	<i>Good fit</i>
NNFI	≥ 0,90	1,00	<i>Good fit</i>
CFI	≥ 0,90	1,00	<i>Good fit</i>
IFI	≥ 0,90	1,00	<i>Good fit</i>
RFI	≥ 0,90	0,97	<i>Good fit</i>
<i>Parsimonius Fit Measures</i>			
PGFI	≥ 0,60	0,72	<i>Good fit</i>
PNFI	≥ 0,60	0,81	<i>Good fit</i>
<i>Other GOFI</i>			
Critical N	>200	332,28	<i>Good fit</i>

Coefficient of Determination (R-Square)

The explanatory power of the model was evaluated by examining the extent to which the independent variables accounted for the variance in the dependent variables. The coefficient of determination (R²) measures the proportion of variance in the endogenous constructs that can be explained by the exogenous constructs. In addition, predictive relevance was assessed using the Q² statistic, which reflects the model's ability to accurately predict and reproduce the observed data based on the estimated parameters. Together, the R² and Q² values provide a comprehensive evaluation of the model's explanatory capability and predictive performance.

Table 5. R-Square (R²) of SEM Model

Variable	R ²
<i>E-Satisfaction</i>	0,77
<i>E-Loyalty</i>	0,80
<i>E-Trust</i>	0,69
$Q^2 = 1 - (1 - R_1^2) * (1 - R_2^2) * (1 - R_3^2)$ $Q^2 = 1 - (1 - 0,77) * (1 - 0,80) * (1 - 0,69) = 0,98$	

The R² values indicate substantial explanatory power of the proposed model. E-satisfaction achieved an R² value of 0.77, suggesting that 77% of its variance is explained by the exogenous constructs. E-trust obtained an R² value of 0.69, indicating that 69% of its variation is accounted for by the model. Meanwhile, e-loyalty recorded the highest R² value of 0.80, demonstrating that the model explains 80% of its variance. Furthermore,

the Q² value of 0.98 (98%) indicates excellent predictive relevance, implying that the model is capable of explaining the vast majority of the observed data variance, while only 2% is attributable to factors outside the model. Overall, these findings confirm the strong explanatory and predictive capability of the proposed model.

Structural Model

The structural model was evaluated by examining the significance of the estimated path coefficients using a critical t-value of 1.96 at the 5% significance level ($\alpha = 0.05$). The results indicate that all hypothesized relationships exceeded the recommended threshold, demonstrating statistical significance. These findings provide empirical support for the proposed hypotheses and confirm the relationships among the constructs. Overall, the structural model exhibits satisfactory statistical performance and is considered appropriate for hypothesis testing and achieving the objectives of the study.

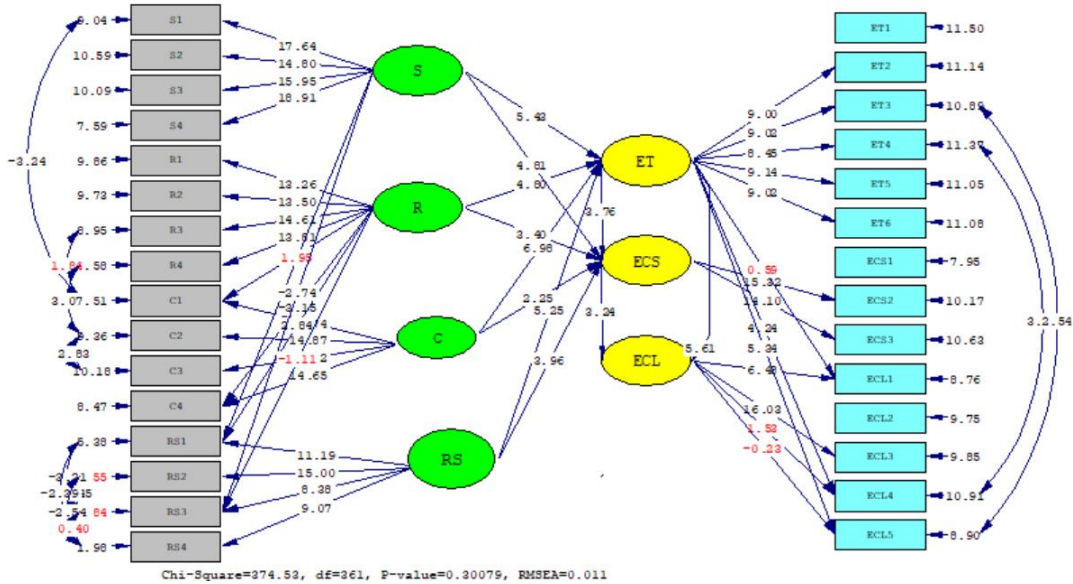


Figure 2: Structure of the Standard Model of Standardized Solution

V. Discussion

Hypothesis testing was carried out following an examination of the model's validity, reliability, and goodness of fit. Table 6 shows the outcomes of the hypothesis testing.

Hypothesis	Path	Coefficients	T-Table	T-Value	Results
H _{1a}	Security ⇒ E-Satisfaction	0,27	1,96	4,81	Supported
H _{1b}	Realibility ⇒E-Satisfaction	0,19	1,96	3,40	Supported
H _{1c}	Convenience ⇒ E Satisfaction	0,14	1,96	2,25	Supported
H _{1d}	Responsiveness ⇒ E-Satisfaction	0,19	1,96	3,96	Supported
H _{2a}	Security ⇒ E-Trust	0,28	1,96	5,42	Supported
H _{2b}	Realibility ⇒ E-Trust	0,26	1,96	4,80	Supported
H _{2c}	Convenience ⇒ E-Trust	0,41	1,96	6,98	Supported
H _{2d}	Responsiveness ⇒ E-Trust	0,24	1,96	5,25	Supported
H ₃	E-Trust ⇒ E-Satisfaction	0,37	1,96	3,76	Supported
H ₄	E-Trust ⇒ E-Loyalty	0,74	1,96	5,61	Supported
H ₅	E-Satisfaction ⇒ E-Loyalty	0,33	1,96	3,24	Supported

Table 6. Hypothesis Test (Direct Effect)

The hypothesis testing results indicate that all proposed hypotheses are supported. As shown in Table X, security has a positive and significant effect on e-satisfaction ($\beta = 0.27$; $t = 4.81$) and e-trust ($\beta = 0.28$; $t = 5.42$). Similarly, reliability positively influences e-satisfaction ($\beta = 0.19$; $t = 3.40$) and e-trust ($\beta = 0.26$; $t = 4.80$). Convenience also demonstrates a significant positive impact on e-satisfaction ($\beta = 0.14$; $t = 2.25$) and e-trust ($\beta = 0.41$; $t = 6.98$), while responsiveness positively affects e-satisfaction ($\beta = 0.19$; $t = 3.96$) and e-trust ($\beta = 0.24$; $t = 5.25$). All t-values exceed the critical value of 1.96 ($p < 0.05$), thereby supporting H_{1a}–H_{1d} and H_{2a}–H_{2d}. Furthermore, e-trust positively influences e-satisfaction ($\beta = 0.37$; $t = 3.76$) and e-loyalty ($\beta = 0.74$; $t = 5.61$), providing support for H₃ and H₄. The results also reveal that e-satisfaction has a positive and significant effect on e-loyalty ($\beta = 0.33$; $t = 3.24$), confirming H₅. Among all relationships, the effect of e-trust on e-loyalty exhibits the largest coefficient, highlighting the critical role of trust in strengthening users' loyalty

toward mobile banking services. Overall, the findings confirm that e-service quality dimensions significantly contribute to the development of e-trust and e-satisfaction, which subsequently enhance e-loyalty. These results provide empirical support for the proposed research framework and demonstrate the importance of delivering secure, reliable, convenient, and responsive digital banking services to foster long-term customer relationships.

VI. Theoretical Contributions And Managerial Implications

This study contributes to the literature on digital banking and e-service quality by providing empirical evidence that security, reliability, convenience, and responsiveness significantly influence e-trust and e-satisfaction, which subsequently enhance e-loyalty among mobile banking users. The findings reinforce the importance of e-service quality as a key determinant of customer behavioral outcomes and highlight the critical role of e-trust and e-satisfaction in fostering long-term customer loyalty. From a managerial perspective, the results suggest that mobile banking providers should continuously improve system security, service reliability, user convenience, and responsiveness to strengthen customer trust and satisfaction. Enhancing data protection, ensuring stable and accurate system performance, simplifying transaction processes, and providing timely customer support can improve the overall user experience and encourage continued usage. By prioritizing these aspects, banks can strengthen customer relationships, increase user retention, and maintain a sustainable competitive advantage in the rapidly evolving digital banking industry.

VII. Conclusions, Limitations, And Future Research

This study investigated the relationships among e-service quality dimensions, e-trust, e-satisfaction, and e-loyalty in the context of Livin' by Mandiri mobile banking users. The findings demonstrate that security, reliability, convenience, and responsiveness significantly and positively influence both e-trust and e-satisfaction. Among these relationships, convenience exhibited the strongest effect on e-trust, highlighting the importance of providing accessible, user-friendly, and efficient digital banking services. Furthermore, e-trust was found to positively affect e-satisfaction and e-loyalty, while e-satisfaction also significantly contributed to e-loyalty. These results confirm that customer trust and satisfaction serve as important mechanisms through which e-service quality translates into long-term customer loyalty. Overall, the study underscores the critical role of delivering high-quality digital banking services in fostering positive customer experiences and strengthening loyalty toward mobile banking applications.

Despite these contributions, several limitations should be acknowledged. First, the study focused solely on Livin' by Mandiri users in Indonesia, which may limit the generalizability of the findings to other banking institutions or digital financial service platforms. Second, the research employed a cross-sectional design, capturing respondents' perceptions at a single point in time, which may not fully reflect changes in customer attitudes and behaviors over time. Third, the model was limited to e-service quality, e-trust, e-satisfaction, and e-loyalty, while other potentially influential factors were not included. Future research is therefore encouraged to incorporate additional constructs, such as perceived usefulness, perceived ease of use, customer experience, user engagement, brand image, system quality, or perceived value, to obtain a more comprehensive understanding of customer behavior in digital banking. Moreover, future studies may adopt longitudinal approaches or comparative analyses across different mobile banking applications and geographical regions to further validate and extend the findings of this study.

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