

From Screens to Trust: How Celebrity Endorsements and Environmental Factors Shape Customer Loyalty in Mobile Banking

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ABSTRACT. This study investigates how mobile banking services influence customer loyalty, with a focus on the mediating role of celebrity endorsement and the moderating effect of environmental factors. Drawing on the Elaboration Likelihood Model (ELM), the study tests five hypotheses using a structural equation modeling (SEM-PLS) approach. The results show that mobile banking services significantly influence both customer loyalty and perceptions of celebrity endorsements. However, celebrity endorsements do not significantly affect customer loyalty, nor do they mediate the relationship between mobile banking services and loyalty. Additionally, environmental factors were found not to moderate the relationship, indicating that loyalty is shaped more by internal service quality than external conditions. The findings emphasize the dominant role of central cues—such as functionality, reliability, and convenience—in digital service experiences, suggesting that peripheral cues like celebrity endorsements are insufficient to foster loyalty in utilitarian services like banking. Practically, the study recommends that financial institutions invest more in service innovation and customer-centric mobile platforms than in celebrity-based promotions. Theoretically, the research expands the ELM framework by illustrating its limitations in high-involvement digital service contexts. Future studies are encouraged to explore alternative mediators and extend the model across different service industries and cultural settings.

Keyword: Mobile Banking Services; Celebrity Endorsement; Environmental Factors; Customer Loyalty

JEL Classification: MM1, MM2

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INTRODUCTION

The increasing shift towards digital financial services has redefined how banks interact with their customers, with mobile banking emerging as a central platform in delivering convenient and personalized banking experiences (Al-Okaily et al., 2024). Despite rapid technological advancements, customer loyalty within mobile banking remains a pressing concern due to competition, low switching costs, and digital fatigue (Hasibuan, 2024). Many banking institutions struggle to sustain long-term customer engagement, indicating a potential misalignment between digital service quality and customer expectations (Andaleeb et al., 2016). This phenomenon signals a growing need to explore non-functional elements such as psychological drivers, social influences, and contextual factors that shape loyalty in mobile banking platforms (Al Issa & Omar, 2024).

Existing literature predominantly focuses on mobile banking features, perceived usefulness, and ease of use as antecedents to customer satisfaction and loyalty (Andreou & Anyfantaki, 2021). However, few studies have investigated how emotional and social influences—such as celebrity endorsement—mediate this relationship (Calvo-Porrall et al., 2021). Furthermore, little attention has been paid to external contextual variables like environmental factors (e.g., technological readiness, societal trends, or digital infrastructure) that may moderate the strength of these relationships. This reveals a clear research gap in understanding the dynamics between service-based variables and loyalty when filtered through social psychology and environmental interactions (Calvo-Porrall & Lévy-Mangin, 2024).

Empirically, banks in Southeast Asia, including Indonesia, have increasingly partnered with celebrities or influencers to enhance digital engagement (Wiratno et al., 2018). Mobile banking applications are now heavily advertised via social media and entertainment platforms, leveraging parasocial relationships to foster trust and emotional connection (Bilici & Çevik, 2023). Despite the popularity of this approach, the effectiveness of celebrity endorsements in promoting customer loyalty remains mixed and underexplored in scholarly research. Furthermore, differences in environmental readiness across urban and rural regions suggest a contextual gap in mobile banking adoption and loyalty outcomes (Qalati et al., 2022).

This study is grounded in the Elaboration Likelihood Model (ELM), which explains how individuals process persuasive information through central and peripheral routes (Petty & Cacioppo, 1986). In this context, mobile banking services represent the central route—requiring cognitive evaluation of usefulness—while celebrity endorsement represents a peripheral cue that influences attitudes when cognitive engagement is low. ELM is suitable for this research because it integrates both rational and emotional dimensions, offering a holistic lens for understanding consumer decision-making in mobile banking. Moreover, it accommodates external moderators like environmental conditions that may influence message processing (Petty & Cacioppo, 1986).

The novelty of this research lies in its integrative framework that positions celebrity endorsement as a mediator and environmental factors as a moderator, alongside mobile banking services and customer loyalty. Unlike prior studies that view loyalty as an outcome of service satisfaction alone, this study adopts a nuanced approach by incorporating symbolic influences and contextual dynamics (Agus Sumantri et al., 2023). The proposed model offers a fresh perspective on how social and environmental factors interlace with digital banking attributes to impact loyalty (Amegbe et al., 2019).

The theoretical contribution of this study is to extend the application of the ELM in the domain of mobile financial services, incorporating both internal service drivers and external environmental

moderators (Petty & Cacioppo, 1986). This approach moves beyond technology acceptance frameworks such as TAM or UTAUT, which often exclude peripheral or contextual influences. The practical contribution includes insights for digital marketers and financial service providers on optimizing loyalty strategies through social cues and environment-sensitive approaches.

The general objective of this study is to examine the influence of mobile banking services on customer loyalty, with celebrity endorsement acting as a mediating variable and environmental factors serving as a moderating variable. Specifically, this research aims to analyze the direct effect of mobile banking services on customer loyalty, investigate the impact of mobile banking services on celebrity endorsement, and examine how celebrity endorsement influences customer loyalty. Furthermore, it seeks to assess the mediating role of celebrity endorsement in the relationship between mobile banking services and customer loyalty, as well as to evaluate the moderating effect of environmental factors on the linkage between mobile banking services and customer loyalty.

LITERATURE REVIEW

Theoretical Framework: Elaboration Likelihood Model (ELM)

The Elaboration Likelihood Model Petty & Cacioppo, 1986 is a dual-process theory that explains how people process persuasive information through two distinct routes: the central route and the peripheral route (Petty & Cacioppo, 1986). The central route involves careful and thoughtful consideration of the arguments, typically used when individuals are motivated and able to process information. In contrast, the peripheral route relies on superficial cues such as attractiveness, credibility, or emotional appeal—often processed automatically with little cognitive effort.

Over time, ELM has evolved to accommodate digital contexts, where consumer decisions are influenced not only by factual content but also by symbolic or affective elements (Petty & Cacioppo, 1986). Researchers have applied ELM in various domains, including advertising, online reviews, and social media marketing, recognizing its flexibility in explaining behavior in both high- and low-involvement settings. Recent studies integrate ELM with moderating or mediating variables to capture the complexity of digital consumer behavior (Petty & Cacioppo, 1986).

In the context of mobile banking, ELM offers a robust framework to analyze how both technical quality (central route) and celebrity cues (peripheral route) influence consumer loyalty. The model accommodates contextual variations by introducing moderators such as environmental factors, thus making it highly relevant for this study. By aligning consumer motivation and ability with environmental readiness, ELM allows a comprehensive view of loyalty formation (Petty & Cacioppo, 1986).

Mobile Banking Services

Mobile banking services refer to digital banking platforms that allow users to perform financial transactions through mobile devices, including checking balances, transferring funds, and making payments (Chauhan, 2024). These services are valued for their convenience, speed, and 24/7 availability, forming the core of user satisfaction in digital banking environments. Their design, usability, and reliability directly influence customer perceptions of service quality and trust (Anas et al., 2023).

Under the ELM framework, mobile banking services fall under the central route of persuasion. Consumers who are actively involved in financial decision-making are more likely to evaluate these services based on functional attributes such as security, usability, and responsiveness (Petty &

Cacioppo, 1986). Thus, when the central route is engaged, service quality becomes a primary determinant of customer loyalty.

In prior research, (Mansour, 2021) found that service quality dimensions of mobile banking significantly influenced customer retention in Pakistan. Their findings indicate that when customers perceive mobile banking to be efficient and secure, their intention to remain loyal increases. This confirms the centrality of service quality in driving customer loyalty, especially in developing economies.

Celebrity Endorsement

Celebrity endorsement involves the use of famous individuals to promote a product, brand, or service by leveraging their popularity and credibility (Calvo-Porrall et al., 2021). Celebrities are viewed as influential opinion leaders whose traits—such as attractiveness, trustworthiness, and expertise—enhance consumer attitudes toward a product (Catharina Clara, 2023). In digital banking, endorsements are increasingly used to humanize abstract services and build emotional resonance.

From the ELM perspective, celebrity endorsement functions as a peripheral cue. When consumers are not highly involved in evaluating banking features, they may rely on the familiarity or likeability of celebrities to form opinions. This route becomes particularly relevant in online environments where information overload or low motivation leads to heuristic processing (Petty & Cacioppo, 1986).

A study by (Hasanah et al., 2025; Jun et al., 2023) demonstrated that celebrity endorsement significantly affected brand trust and loyalty in mobile payment applications in Malaysia. The study suggested that well-known figures can effectively mediate customer perceptions when technical knowledge is limited, reinforcing their role as persuasive agents in digital services.

Customer Loyalty

Customer loyalty is defined as a deeply held commitment to repurchase or continue using a product or service consistently in the future, despite situational influences and marketing efforts by competitors (Aziz, 2024). In mobile banking, loyalty is manifested through continued app usage, recommendation to others, and reduced tendency to switch providers (Tabrani et al., 2018).

Within the ELM framework, customer loyalty can result from either rational evaluation (central route) or emotional connection (peripheral route) (Petty & Cacioppo, 1986). Thus, loyalty in mobile banking may be driven by a combination of high-quality services and symbolic appeals such as celebrity endorsement or environmental credibility. The dual-route framework explains how consumers navigate between these influences.

(Almohaimmeed, 2019) found that customer loyalty in Indian mobile banking users was significantly influenced by both perceived service quality and emotional branding. Their findings highlight that loyalty is not merely a rational outcome but also shaped by affective and symbolic dimensions, supporting the ELM's relevance in this context.

Environmental Factors

Environmental factors in digital banking refer to external conditions such as digital infrastructure, regulatory support, technological literacy, and cultural acceptance of online services (Reimer, 2023). These variables can either facilitate or hinder the effectiveness of mobile banking, influencing user trust and loyalty indirectly.

In ELM, environmental factors act as moderators that affect the ability and motivation of consumers to process information (Petty & Cacioppo, 1986). For instance, users in regions with poor digital access may rely more on peripheral cues due to limited exposure, while those in urban settings might engage in deeper evaluation. Therefore, environmental readiness influences the route of persuasion taken by the consumer.

Research by (Simoes et al., 2019) in Jordan found that environmental factors like internet accessibility and technological support significantly moderated user attitudes towards mobile banking adoption. This implies that even when services and promotions are optimized, **their effect on loyalty may vary across contexts.**

H1: Mobile banking services have a significant positive effect on customer loyalty.

H2: Mobile banking services have a significant positive effect on celebrity endorsement.

H3: Celebrity endorsement has a significant positive effect on customer loyalty.

H4: Celebrity endorsement significantly mediates the relationship between mobile banking services and customer loyalty.

H5: Environmental factors significantly moderate the relationship between mobile banking services and customer loyalty.

METHODS

This study adopts a quantitative explanatory design to test the relationships among mobile banking services, celebrity endorsement, environmental factors, and customer loyalty (Hair et al., 2022). A cross-sectional approach is used by distributing structured questionnaires to mobile banking users in Indonesia. Respondents are selected using purposive sampling, focusing on individuals who use mobile banking and have seen celebrity-based banking advertisements. A total of 179 respondents are included in the study, based on Slovin's formula with a 7% margin of error. The unit of analysis is individual mobile banking users.

The study involves five key variables: mobile banking services, celebrity endorsement, customer loyalty, and environmental factors, along with their mediating and moderating effects. Celebrity endorsement serves as a mediator between mobile banking services and customer loyalty, while environmental factors serve as a moderator. Indicators for mobile banking services, based on (Tabrani et al., 2018), include ease of use, perceived usefulness, accessibility, and reliability. Celebrity endorsement indicators follow (Calvo-Porrall & Lévy-Mangin, 2024), including trustworthiness, attractiveness, expertise, and credibility. All items are measured using a 5-point Likert scale ranging from "strongly disagree" to "strongly agree."

Environmental factors are measured using the framework of (Qalati et al., 2022), which includes technological infrastructure, regulatory support, digital literacy, and cultural acceptance. These indicators assess the readiness and constraints of users in adopting mobile financial services. Customer loyalty is measured using indicators developed by (Tabrani et al., 2018), such as repurchase intention, willingness to recommend, emotional attachment, and resistance to switching. These variables capture both the behavioral and emotional components of loyalty. This comprehensive structure supports the investigation of multi-path influence on customer commitment.

Data collection is conducted through online surveys shared via social media platforms and mobile banking user communities. Prior to hypothesis testing, validity and reliability of each construct are assessed through indicator loadings, composite reliability, and average variance extracted (AVE).

Data analysis is performed using Structural Equation Modeling with the Partial Least Squares (SEM-PLS) approach. SmartPLS 4.0 software is utilized to test the measurement model and structural relationships simultaneously. SEM-PLS is chosen for its suitability in complex models and small to medium sample sizes (Hair et al., 2022).

This method allows testing of both direct and indirect effects, including mediation and moderation paths. Mediation analysis tests whether celebrity endorsement explains the link between mobile banking and loyalty. Moderation analysis evaluates whether environmental factors strengthen or weaken this relationship. The results are interpreted based on path coefficients, t-statistics, and p-values. A significance level of 5% is applied to determine statistical relevance across hypotheses (Hair et al., 2022).

RESULT AND DISCUSSION

RESULT

The validity test in the Structural Equation Modeling analysis based on Partial Least Squares (SEM-PLS) aims to measure the extent to which the indicator is able to represent the measured construct. One of the criteria used to assess the validity of the convergence is the outer loading value of each indicator against its construct. In this context, an indicator is said to be valid if the loading factor value is greater than 0.7, indicating that more than 50% of the indicator's variance is explained by the latent construct being measured. A value above 0.7 reflects the contribution of a strong and consistent indicator in explaining latent variables, as well as reinforcing the overall reliability and validity of the model. Thus, when all indicators in the model have a loading value above 0.7, it can be concluded that the constructs in the model have good convergent validity (Hair et al., 2022).

Table 1. Loading Factor

Indicator	Celebrity Endorsement	Customer Loyalty	Environmental Factors	Mobile Banking Services	Moderating Effect 1
CE1	0,890				
CE2	0,871				
CE3	0,913				
CE4	0,838				
CL1		0,857			
CL2		0,910			
CL3		0,901			
CL4		0,832			
Celebrity Endorsement *					1,308
Environmental Factors					
EF1			0,892		
EF2			0,886		
EF3			0,902		
EF4			0,798		
MBS2				0,937	
MBS3				0,919	
MBS4				0,900	
MBS1				0,787	

Source: Data processing results, 2025

The outer loading results confirm that all indicators for each construct surpass the threshold of 0.70, demonstrating adequate indicator reliability. Celebrity Endorsement indicators range from 0.838 to 0.913, while Customer Loyalty indicators fall between 0.832 and 0.910. Environmental Factors loadings range from 0.798 to 0.902, and Mobile Banking Services indicators show high reliability from 0.787 to 0.937. These values suggest that each item contributes significantly to its respective latent variable. Therefore, the measurement model exhibits strong convergent validity at the indicator level.

The Construct Reliability and Validity test in SEM-PLS aims to assess the extent to which constructs in the research model show internal consistency and convergent validity. There are several indicators used in this test, namely Cronbach's Alpha, rho_A, Composite Reliability, and Average Variance Extracted (AVE). Cronbach's Alpha and Composite Reliability are used to measure the reliability of the construct, where the recommended value is at least 0.7. Meanwhile, the AVE value is used to measure the validity of the convergence, with a minimum threshold of 0.5. If all the values of these indicators meet the criteria, then the construct is considered reliable and valid, so it is suitable for use in structural models (Hair et al., 2022).

Table 2. Construct Reliability and Validity

Variable	Cronbach's Alpha	rho_A	Composite Reliability	Average Variance Extracted (AVE)
Celebrity Endorsement	0,902	0,907	0,931	0,772
Customer Loyalty	0,898	0,898	0,929	0,766
Environmental Factors	0,893	0,895	0,926	0,758
Mobile Banking Services	0,909	0,915	0,937	0,788
Moderating Effect 1	1,000	1,000	1,000	1,000

Source: Data processing results, 2025

All constructs meet the required thresholds for internal consistency reliability and convergent validity. Cronbach's Alpha values for all variables are above 0.70, with Mobile Banking Services having the highest at 0.909. Composite Reliability (CR) values range from 0.926 to 0.937, confirming the robustness of the measurement scales. Average Variance Extracted (AVE) for all constructs also exceeds the 0.50 threshold, indicating that more than half of the variance is explained by the constructs. This confirms that each construct is both reliable and valid for further analysis.

The *Discriminant Validity* test on SEM-PLS aims to ensure that each construct in the model actually measures concepts that are different from each other. One commonly used method is the *Fornell-Larcker Criterion*, which compares the square root of the *Average Variance Extracted* (AVE) value of each construct with the correlation between other constructs. Discriminant validity is declared to be met when the value of the square root of AVE (shown in the diagonal of the table) is higher than the correlation between constructs (values outside the diagonal). This shows that the construct is more highly correlated with its own indicators than with other constructs, thus confirming that each construct is unique and does not overlap with other constructs in the model (Hair et al., 2022).

Table 3. Discriminant Validity

Variable	Celebrity Endorsement	Customer Loyalty	Environmental Factors	Mobile Banking Services	Moderating Effect 1
Celebrity Endorsement	0,878				
Customer Loyalty	0,744	0,875			
Environmental Factors	0,776	0,836	0,871		
Mobile Banking Services	0,793	0,800	0,814	0,888	
Moderating Effect 1	-0,311	-0,208	-0,334	-0,266	1,000

Source: Data processing results, 2025

The square roots of AVE (diagonal values) are greater than the inter-construct correlations, confirming satisfactory discriminant validity. Celebrity Endorsement shows a strong correlation with Mobile Banking Services (0.793) and Customer Loyalty (0.744), yet remains distinct with an AVE square root of 0.878. Similarly, Customer Loyalty, with a diagonal value of 0.875, is distinguishable from Environmental Factors and Mobile Banking Services. The lowest correlation is between the Moderating Effect and other variables, which supports its conceptual uniqueness. Thus, all constructs demonstrate sufficient discriminant validity, supporting the structural model's integrity.

The *F-Square* test in the SEM-PLS approach is used to measure the magnitude of exogenous influence on endogenous by looking at how much a variable contributes to the increase in *R-Square value* of endogenous constructs. The *F-Square* value gives an indication of whether a construct has a small (≥ 0.02), medium (≥ 0.15), or large (≥ 0.35) effect on other constructs in the structural model. Thus, this test is important to evaluate the predictive power of the relationships between variables in the research model (Hair et al., 2022).

Table 4. F-Square

Variable	Celebrity Endorsement	Customer Loyalty	Environmental Factors	Mobile Banking Services	Moderating Effect 1
Celebrity Endorsement		0,022			
Customer Loyalty					
Environmental Factors		0,318			
Mobile Banking Services	1,692	0,092			
Moderating Effect 1		0,026			

Source: Data processing results, 2025

The f^2 values suggest varying effect strengths of exogenous variables on endogenous constructs. Mobile Banking Services has a large effect on Celebrity Endorsement ($f^2 = 1.692$) and a small-to-moderate effect on Customer Loyalty ($f^2 = 0.092$). Celebrity Endorsement has a small effect on Customer Loyalty ($f^2 = 0.022$), whereas Environmental Factors contribute a moderate effect to Customer Loyalty ($f^2 = 0.318$). The moderating effect is minimal ($f^2 = 0.026$), suggesting its influence is statistically small. These findings offer insight into the practical importance of each path in the model.

The *R-Square* test in Structural Equation Modeling Partial Least Squares (SEM-PLS) is used to measure the magnitude of the ability of independent variables to explain dependent variables. The *high R-Square* value indicates that the model has good predictive power. In general, the *R-Square* value of 0.25 is considered weak, 0.50 moderate, and 0.75 strong. *R-Square Adjusted*, on the other hand, considers the number of indicators and variables in the model, thus providing a more conservative measure of the model's predictive power (Hair et al., 2022).

Table 5. R-Square

Variable	R Square	R Square Adjusted
Celebrity Endorsement	0,629	0,626
Customer Loyalty	0,753	0,747

Source: Data processing results, 2025

The R^2 value for Celebrity Endorsement is 0.629, indicating that 62.9% of its variance is explained by Mobile Banking Services. For Customer Loyalty, the R^2 value is even higher at 0.753, implying substantial explanatory power from the predictors. The adjusted R^2 values (0.626 and 0.747) remain close, showing model stability even with degrees of freedom accounted for. These results classify the predictive accuracy as moderate to substantial based on Chin (1998). Therefore, the structural model demonstrates a strong ability to predict endogenous latent variables.

Hypothesis tests in Structural Equation Modeling Partial Least Squares (SEM-PLS) were conducted to test the influence between latent variables in the research model. This process involves analyzing the path coefficient, t-statistic, and p-value values to determine whether the relationships between variables are statistically significant (Hair et al., 2022). A t-statistic value above 1.96 (at a significance level of 5%) indicates that the hypothesis is accepted, meaning that there is a significant influence between the independent variables and the bound variables. In addition, the direction of the coefficient (positive or negative) indicates the type of relationship that occurs. This hypothesis test is crucial in empirically proving the causal relationship that has been formulated in the conceptual framework of the research. The validity of these test results provides a solid basis for drawing conclusions about the influences tested in the SEM-PLS model (Hair et al., 2022).

Table 6. Hypothesis Test

Hypothesis	Standard Deviation (STDEV)	T Statistics (O/STDEV)	P Values
Mobile Banking Services to Customer Loyalty	0,082	3,552	0,000

Hypothesis	Standard Deviation (STDEV)	T Statistics (O/STDEV)	P Values
Mobile Banking Services to Celebrity Endorsement	0,038	20,648	0,000
Celebrity Endorsement to Customer Loyalty	0,091	1,453	0,147
Celebrity Endorsement mediated Mobile Banking Services to Customer Loyalty	0,074	1,419	0,157
Environmental Factors moderate Mobile Banking Services to Customer Loyalty	0,044	1,508	0,132

Source: Data processing results, 2025

DISCUSSION

Mobile Banking Services to Customer Loyalty

The results show that mobile banking services significantly influence customer loyalty, with a t-statistic of 3.552 and a p-value of 0.000, well below the 0.05 significance threshold. This suggests that the direct relationship between the perceived quality and features of mobile banking and the loyalty of customers is statistically significant. The standard deviation of 0.082 indicates a stable and precise estimation of the path coefficient. These findings confirm that customers' perceptions of convenient, reliable, and secure mobile banking services are crucial in building loyalty. Therefore, Hypothesis 1 is supported.

From a theoretical standpoint, this result aligns with the Elaboration Likelihood Model (ELM), where high-quality services act as central route cues leading to stronger customer loyalty. Mobile banking services provide rational justifications, such as efficiency, control, and reliability, that engage users cognitively. When consumers perceive that banking services meet their utilitarian needs, they are more likely to form long-term loyalty intentions. These central features dominate over peripheral cues when service quality is high. Thus, mobile banking features serve as key cognitive drivers in consumer decision-making.

The findings resonate with previous studies that affirm the positive relationship between technology-enabled services and loyalty. Research by (Chauhan, 2024) found that the usability and trust of mobile banking positively affect user retention. Similarly, (Andaleeb et al., 2016) emphasize that service functionality and user satisfaction mediate the technology-loyalty link. The consistency of this study with prior literature strengthens its validity across different banking contexts. This implies that mobile service quality remains a central determinant of loyalty in the digital age.

In real-world practice, these results reflect a growing reliance on mobile platforms for financial transactions. Many customers now base their loyalty on mobile app performance rather than branch experiences. For instance, banks in Southeast Asia have witnessed increased customer retention after investing in app design and security features. This shift reflects evolving customer expectations in a digital-first environment. Hence, banks that prioritize seamless mobile experiences are more likely to retain and satisfy their customers.

Mobile Banking Services to Celebrity Endorsement

Statistical analysis confirms a strong and significant effect of mobile banking services on celebrity endorsement perception, with a high t-statistic of 20.648 and a p-value of 0.000. This exceptionally high level of significance suggests that customer perceptions of the mobile service positively

influence how celebrity endorsers are evaluated. The low standard deviation (0.038) implies consistency in this effect across respondents. Customers are likely to interpret celebrity endorsements more favorably when they are already satisfied with the service. Therefore, Hypothesis 2 is supported.

Theoretically, this can be explained by the Stimulus-Organism-Response (SOR) model. In this case, mobile banking service acts as the external stimulus that affects users' internal evaluations (organism) of the celebrity, ultimately influencing their behavioral response. When customers experience satisfaction or convenience through the service, they tend to associate those positive emotions with the brand and its endorsers. The celebrity becomes a symbolic reinforcement of the good service experience. Thus, endorsement effectiveness can be shaped by prior user interaction with the product.

This relationship also supports prior empirical studies, such as (Jun et al., 2023), who emphasized the importance of congruency between product experience and endorser credibility. If the service quality is poor, even high-profile endorsers may fail to appear convincing or relevant. Conversely, when the banking app performs well, it amplifies the perceived attractiveness, trustworthiness, and expertise of the celebrity. This indicates a synergistic relationship between service quality and celebrity appeal. Hence, companies should not view endorsements in isolation but in connection with service delivery.

In practice, many mobile banking users follow influencers or celebrities who reflect their digital lifestyles. When users are already engaged and satisfied with an app, they are more receptive to promotional messages from public figures. For example, Indonesia's leading digital banks leverage K-pop idols and local actors to strengthen emotional bonds with tech-savvy youth. These figures are perceived as authentic when the product they endorse already meets expectations. Thus, perceived service quality plays a foundational role in determining the success of celebrity-based campaigns.

Celebrity Endorsement to Customer Loyalty

The effect of celebrity endorsement on customer loyalty is found to be statistically insignificant, with a t-statistic of 1.453 and a p-value of 0.147. This means that although a positive relationship exists, it does not reach conventional significance levels ($p < 0.05$). The standard deviation of 0.091 shows moderate variability in how respondents perceive this relationship. Therefore, Hypothesis 3 is not supported based on the current sample data. The implication is that endorsers alone may not be strong enough to generate loyalty unless combined with other factors.

This finding challenges the assumptions of the Elaboration Likelihood Model (ELM), particularly the peripheral route of persuasion. In low-involvement situations, celebrity endorsers are expected to influence consumer attitudes and behaviors. However, this result implies that such peripheral cues may be insufficient in the context of mobile banking, where users seek more substantive service qualities. This suggests that loyalty decisions are driven more by rational evaluations than by celebrity influence. Hence, the power of endorsements may diminish when functional service criteria dominate.

Contrary to prior studies such as (Catharina Clara, 2023), which argued that celebrity endorsement enhances brand trust and loyalty, this research suggests limited influence in service-heavy sectors. It also contrasts with findings in fashion and cosmetics industries, where endorser credibility has a direct impact on loyalty. The inconsistency could stem from the nature of banking, which is more utilitarian and high-risk compared to hedonic or low-risk products. Therefore, the role of celebrity

endorsement may be more effective in awareness-building than in sustaining loyalty. This highlights the importance of industry context when applying marketing theories.

In real-world terms, this may explain why some banks invest heavily in celebrity campaigns but still struggle with customer churn. Users may be initially attracted by endorsements but do not stay unless the mobile experience meets or exceeds expectations. Especially in fintech markets where switching costs are low, loyalty is tied more to features and service reliability. Consumers increasingly expect endorsements to be substantiated by performance. Hence, loyalty-building strategies must go beyond superficial cues.

Celebrity Endorsement mediates MBS to Customer Loyalty

The mediation analysis shows that celebrity endorsement does not significantly mediate the relationship between mobile banking services and customer loyalty ($t = 1.419, p = 0.157$). Although the direct path from mobile banking to loyalty was significant, the indirect path through endorsement was not. This suggests that the presence of a celebrity does not amplify or transmit the effect of banking service quality onto loyalty. The standard deviation of 0.074 also reflects relatively low variation but not enough to support the mediation claim. Hence, Hypothesis 4 is rejected.

Theoretically, this indicates a lack of indirect effect within the Elaboration Likelihood Model's dual-route framework. While the central route (service quality) is effective, the peripheral route (celebrity cues) fails to significantly enhance the outcome variable. This may reflect the rational and trust-based nature of mobile banking, where celebrity presence does not influence post-use attitudes. In contrast, industries with higher emotional engagement may yield stronger mediation effects. Thus, the pathway from service experience to loyalty is more direct and less influenced by symbolic figures.

Empirical research has shown that mediation effects of celebrity endorsement are more effective when the endorser-product fit is high and when the product itself is hedonic. In this study, however, the functional and high-stakes nature of banking services may have diminished the relevance of the mediator. This also aligns with studies like (Erdogan, 1999), which caution that the influence of celebrities is often product-dependent. Therefore, marketers must evaluate whether endorsement strategies offer real incremental value. This result suggests it may not.

In practical terms, the lack of a mediating effect indicates that resources invested in celebrity campaigns may not necessarily increase loyalty if the service itself is already effective. Customers may acknowledge the endorser but remain loyal due to personal experiences and service performance. This reinforces the idea that in the digital banking space, functional excellence trumps image association. Companies should thus prioritize service innovation before branding. Celebrity partnerships should serve as complements, not substitutes, for customer retention strategies.

Environmental Factors moderate MBS to Customer Loyalty

The moderation analysis reveals that environmental factors do not significantly moderate the relationship between mobile banking services and customer loyalty ($t = 1.508, p = 0.132$). Although there is a weak interaction effect, it does not reach statistical significance. The standard deviation of 0.044 indicates the estimate is relatively stable but small in size. This means that regardless of external conditions, the effect of mobile services on loyalty remains relatively constant. Therefore, Hypothesis 5 is rejected.

This contradicts expectations derived from contingency theory, which posits that contextual or environmental variables can enhance or suppress primary relationships. In theory, factors like digital infrastructure, regulatory support, or social trends should moderate how customers perceive mobile banking benefits. However, the insignificant result suggests that users form loyalty judgments based more on personal experience than environmental enablers. This may be due to increasing digital literacy and access, which reduce the variability in external influences. Hence, contextual conditions may be less critical in determining loyalty in digitally mature markets.

Past research by Ahmad and (Sahid et al., 2024) has indicated that environmental support conditions influence customer acceptance and satisfaction in emerging markets. However, their study focused on technology adoption, not loyalty. In this study, loyalty appears to be a more internalized construct, unaffected by broader environmental stimuli. This divergence could also reflect temporal factors, such as a post-pandemic normalization of digital banking. As users grow accustomed to mobile finance, external disruptions become less salient in shaping behavioral loyalty.

In real-life practice, this suggests that banks should focus on customer-centric design rather than macro-environmental changes. While improving infrastructure and regulation helps adoption, long-term loyalty depends on how users personally experience the app. Banks may overestimate the influence of external policies or tech trends on customer retention. Instead, consistent performance, transparency, and ease of use remain more impactful. Thus, internal service quality should remain the primary loyalty driver, even in varied environmental conditions.

CONCLUSION

This study examined the influence of mobile banking services on customer loyalty, including the mediating role of celebrity endorsement and the moderating effect of environmental factors. The findings revealed that mobile banking services significantly impact customer loyalty and positively influence the perception of celebrity endorsements. However, celebrity endorsements neither significantly influence loyalty directly nor mediate the relationship between service quality and loyalty. Similarly, environmental factors did not significantly moderate the relationship, indicating that loyalty is primarily driven by the quality of mobile banking services themselves.

The study has certain limitations that must be acknowledged. First, the data were collected from a single period, making the results vulnerable to time-based bias. Second, the study relies on perceptions rather than behavioral data, limiting its predictive strength regarding actual customer retention. Furthermore, the sample size and geographic scope may restrict generalizability across broader populations or different cultural contexts. These limitations suggest caution in extrapolating the results beyond the sample.

Theoretically, this research contributes to the literature on digital service marketing and the Elaboration Likelihood Model by highlighting the dominance of central cues (e.g., service quality) over peripheral ones (e.g., celebrity endorsement) in loyalty formation. Practically, the findings urge financial service providers to prioritize the quality, reliability, and convenience of mobile banking services over costly celebrity campaigns. Marketing strategies should be aligned more closely with users' utilitarian expectations than image-based appeal. The limited effect of environmental factors further suggests that internal service features have greater weight than external conditions in shaping loyalty.

Future research should explore alternative mediators, such as trust or customer satisfaction, which may offer better explanatory power for the relationship between service quality and loyalty. Longitudinal studies would also help clarify how endorsement and environmental dynamics evolve over time. Additionally, comparative studies between industries—such as banking, retail, and entertainment—may further illuminate the context-dependent nature of celebrity influence. Employing qualitative methods could also enrich the understanding of how customers interpret endorsements in relation to service experiences.

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