

Product Quality and Customer Loyalty: The Mediating Role of Customer Satisfaction among Samsung Smartphone Users in Bandung City

Argya Permanaputera Irman^{1*}, Edi Nurtjahjadi²

Department of Management, Faculty of Economics and Business, Universitas Jenderal Achmad Yani

Corresponding Author: Argya Permanaputera Irman

argyapermanaputera@gmail.com

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ABSTRACT

This study examines the effect of product quality on customer loyalty mediated by customer satisfaction among Samsung smartphone users in Bandung City, Indonesia, a market in which the brand lost share while national shipments grew. Its contribution lies in testing the mediation model on a declining brand and in restricting respondents to users of at least three years, so that loyalty reflects a completed replacement cycle. Data were collected cross-sectionally from 90 purposively selected respondents through a questionnaire measuring the three constructs. Simple and multiple regression and the Sobel test were applied. Product quality significantly affects satisfaction and loyalty, satisfaction affects loyalty, and satisfaction partially mediates the relationship, transmitting roughly one-third of the total effect.

INTRODUCTION

Smartphones have become inseparable from everyday activity, serving as instruments of communication, financial transaction, and social interaction. The rapid expansion of this market has intensified competition to the point where retaining existing customers matters as much as attracting new ones, since loyal customers reduce acquisition costs and sustain firm performance over time (Yum & Yoo, 2023).

Against this expanding market, Samsung's position in Indonesia has moved in the opposite direction. Data from the International Data Corporation show that smartphone shipments to Indonesia reached ten million units in the first half of 2024, growing 27.4 percent year on year, driven by the Eid season and by rising 5G penetration, which climbed from 44.3 percent to 56.9 percent over the same period. Within that growth, Samsung was the only brand among the top five to record negative annual growth at -8.2 percent, with its market share falling from 24.0 percent in 2023 to 17.3 percent in the first quarter of 2024 (IDC, 2023, 2024). A brand losing ground while its market expands suggests that existing users are migrating to competitors, a condition understood in the marketing literature as weakening customer loyalty.

Product quality is widely regarded as a determinant of loyalty, yet its influence does not always operate directly. Tunahan and Kutlu (2023), studying 530 mobile phone users and 665 computer users in Turkey, found that experienced product quality raises satisfaction and that satisfaction mediates the path to brand loyalty. Comparable evidence appears in cosmetics (Rachmawati & Santika, 2022) and in online shopping applications (Zaato et al., 2023). In Indonesia, Wahid and Ratnamurni (2024) confirmed the mediation on Xiaomi users in the same city examined here, and Zamzami and Erpurini (2025) reported similar results for instant noodles. Evidence is not uniform, however: Aji and Nurlinda (2024) found no mediating effect of satisfaction in furniture retail, with product quality acting directly on loyalty instead.

This inconsistency leaves room for further testing, and two features of the present study address gaps in the existing work. First, research on Samsung specifically has stopped at repurchase intention rather than loyalty and has not examined the mediating mechanism (Nia Nurjanah & Erpurini, 2025), while studies that test the full mediation model have used brands with rising rather than falling market share. Second, respondents here are restricted to users of at least three years, ensuring they have passed at least one device replacement cycle, so that the loyalty measured is tested commitment rather than short-term post-purchase satisfaction. This study therefore analyses whether product quality influences customer loyalty among Samsung smartphone users in Bandung City and whether customer satisfaction mediates that influence, contributing empirical evidence from a high-involvement product category and from a brand under competitive pressure.

LITERATURE REVIEW

Product Quality

Kotler and Keller (2016) define quality as the totality of features and characteristics of a product or service that bear on its ability to satisfy stated or

implied needs, positioning quality as a correspondence between product attributes and user requirements rather than as a standalone technical property. Kotler and Armstrong (2018) add the performance dimension, encompassing durability, reliability, precision, ease of operation, and ease of repair.

Recent empirical work treats product quality as a multidimensional construct whose salient dimensions are context-dependent. Tunahan and Kutlu (2023) developed a consumer experienced product quality scale for mobile phones and computers and found reliability contributing less to experienced quality than other dimensions, indicating that users in this category judge quality through daily use rather than through specifications alone. Naini et al. (2022) and Taufik et al. (2022) similarly report that the dimensions most strongly affecting satisfaction vary by product category.

When product attributes meet or exceed expectations, users experience positive disconfirmation and consequently satisfaction. Evidence for this relationship in the mobile phone category comes from Tunahan and Kutlu (2023), with converging findings in Indonesian settings from Erpurini and Nuha (2025) and Nufus and Ratnamurni (2024).

H1: Product quality has a positive effect on customer satisfaction.

Product quality may also affect loyalty directly. Users who judge a device technically superior tend to retain their choice because the cost and risk of switching are perceived as exceeding the benefit, a consideration that becomes more pronounced in high-involvement categories where purchases are costly and usage cycles long. Aji and Nurlinda (2024) and Hongdiyanto and Liemena (2021) report such direct effects.

H2: Product quality has a positive effect on customer loyalty.

Customer Satisfaction and Customer Loyalty

Oliver (1999) explains satisfaction through the expectation-disconfirmation paradigm: consumers form expectations before use and compare them against perceived performance, with performance above expectations producing satisfaction and performance below producing dissatisfaction. The same author defines loyalty as a deep commitment to repurchase a preferred product consistently in the future despite situational influences and marketing efforts that might induce switching, and describes loyalty as forming through cognitive, affective, conative, and action stages, with satisfaction governing the transition from the cognitive to the affective stage.

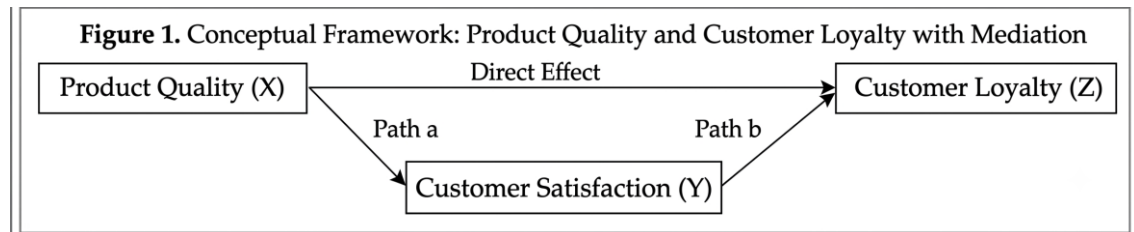
Satisfied customers develop favourable attitudes toward the brand and become willing to repurchase, to resist competing offers, and to recommend the product to others. Yum and Yoo (2023) report a positive effect of satisfaction on loyalty among mobile social media users, and Khan et al. (2022) and Marcos and Coelho (2022) confirm the relationship in service contexts.

H3: Customer satisfaction has a positive effect on customer loyalty.

Combining these arguments, product quality is expected to influence loyalty indirectly through satisfaction: quality attributes are evaluated first and generate a feeling of satisfaction, which then settles into commitment to the brand. Caruana (2002) demonstrated this mediating role in retail banking, and subsequent studies extended it to other contexts (Rachmawati & Santika, 2022;

Zaato et al., 2023; Wahid & Ratnamurni, 2024). The contrary finding of Aji and Nurlinda (2024) motivates retesting.

H4: Customer satisfaction mediates the effect of product quality on customer loyalty.



METHODOLOGY

This study applies a quantitative approach with an explanatory design. The population comprises Samsung smartphone users domiciled in Bandung City, whose exact size is unknown because no official record of brand-level users by city is available. Respondents were selected by purposive sampling under three criteria: a minimum age of eighteen years, domicile in Bandung City, and at least three years of Samsung smartphone use. The age threshold reflects the cognitive capacity and financial autonomy required to evaluate product attributes and make purchase decisions independently, while the tenure requirement ensures respondents have passed at least one replacement cycle.

The sample size was set at 90 respondents. Roscoe (in Sekaran & Bougie, 2020) considers samples between 30 and 500 appropriate for behavioural research, and Sugiyono (2019) recommends at least ten times the number of variables. With three variables, the minimum would be 30; the sample used here is thirty times the number of variables, three times that minimum.

Data were collected cross-sectionally through an electronic questionnaire distributed via social media, with three screening items at the outset. Product quality was measured through five indicators covering resistance to damage, battery endurance, data privacy protection, sound quality, and visual display quality. Customer satisfaction and customer loyalty were each measured through three indicators. All items used a five-point Likert scale. The instrument was examined through content validity testing, logical relationship testing among indicators, and concurrent validity testing. A pilot administration to 30 respondents produced Cronbach's alpha values of 0.757, 0.764, and 0.866 for product quality, customer satisfaction, and customer loyalty respectively. Recomputed on the analysed sample of 90 respondents, the corresponding values were 0.567, 0.623, and 0.731. Item-total correlations remained acceptable throughout, ranging from 0.459 to 0.697 for product quality, from 0.737 to 0.768 for customer satisfaction, and from 0.746 to 0.864 for customer loyalty, indicating that individual items relate coherently to their respective constructs. The lower alpha values in the full sample are attributable in part to the small number of items per construct, since alpha is sensitive to scale length and three-item scales are penalised even when internal consistency is adequate. Values in this range are commonly treated as acceptable in

exploratory research and in studies employing newly developed instruments, though the limitation is acknowledged below.

Analysis proceeded through classical assumption testing followed by simple and multiple linear regression, with the mediating effect examined using the Sobel test. All computations used SPSS version 25.

RESEARCH RESULT

Classical Assumption Testing

Normality was assessed using the Kolmogorov-Smirnov test on regression residuals. The simple regression model produced a significance value of 0.073 and the multiple regression model a value of 0.791, both exceeding 0.05, indicating normally distributed residuals. Multicollinearity testing yielded a tolerance of 0.567 and a variance inflation factor of 1.764, within the accepted thresholds of above 0.10 and below 10. Heteroscedasticity was examined through the Glejser test, producing significance values of 0.729 for product quality and 0.157 for customer satisfaction, both above 0.05. The model therefore satisfies the classical assumptions.

Regression Analysis

Table 1 reports the simple regression of product quality on customer satisfaction.

Table 1. Simple Regression of Product Quality on Customer Satisfaction

Variable	B	Beta	t	Sig.
(Constant)	1.833	-	1.554	0.124
Product Quality (X)	0.489	0.658	8.197	0.000
R Square	0.433			

The resulting equation is expressed as follows:

$$Y = 1.833 + 0.489X \quad (1)$$

The coefficient of 0.489 is positive and significant at 0.000, with a t value of 8.197 exceeding the critical value of 1.987 at 88 degrees of freedom. Product quality accounts for 43.3 percent of the variance in customer satisfaction. A supplementary regression of product quality on customer loyalty without the mediator produced a coefficient of 0.511 with a t value of 7.420 and an R square of 0.385; this coefficient represents the total effect used later as a comparison in the mediation analysis.

Table 2 reports the multiple regression of product quality and customer satisfaction on customer loyalty.

Table 2. Multiple Regression on Customer Loyalty

Variable	B	Beta	t	Sig.
(Constant)	0.885	–	0.669	0.505
Product Quality (X)	0.339	0.412	3.872	0.000
Customer Satisfaction (Y)	0.352	0.317	2.980	0.004
R Square	0.442			
Adjusted R Square	0.429			
F	34.438		Sig.	0.000

The estimated model is expressed as follows:

$$Z = 0.885 + 0.339X + 0.352Y \quad (2)$$

The F value of 34.438 exceeds the critical value of 3.101 at a significance of 0.000, confirming model fit. Both predictors are significant at the parametric level, with t values of 3.872 and 2.980 against a critical value of 1.988. The adjusted R square of 0.429 indicates that the two predictors jointly explain 42.9 percent of the variance in customer loyalty. The standardised coefficients show product quality contributing more strongly than customer satisfaction.

Mediation Testing

The Sobel statistic was computed from the coefficients and standard errors of the a path and the b path, as follows:

$$z = ab / \sqrt{(b^2Sa^2 + a^2Sb^2 + Sa^2Sb^2)} \quad (3)$$

Table 3. Sobel Test Result

Component	Value
Coefficient a ($X \rightarrow Y$)	0.489
Standard error Sa	0.060
Coefficient b ($Y \rightarrow Z$)	0.352
Standard error Sb	0.118
Indirect effect ($a \times b$)	0.172
Standard error Sab	0.062
z	2.783
Sig.	0.005

The indirect effect of 0.172 is significant, with a z value of 2.783 exceeding the critical value of 1.960 at a significance of 0.005. The mediation is partial rather than full, since the direct effect remains significant after the mediator enters the model, with the coefficient falling from 0.511 to 0.339. Table 4 summarises the hypothesis testing.

Table 4. Summary of Hypothesis Testing

Hypothesis	Statistic	Sig.	Decision
H1: Product quality → Customer satisfaction	$t = 8.197$	0.000	Supported
H2: Product quality → Customer loyalty	$t = 3.872$	0.000	Supported
H3: Customer satisfaction → Customer loyalty	$t = 2.980$	0.004	Supported
H4: Satisfaction mediates quality → loyalty	$z = 2.783$	0.005	Supported

DISCUSSION

The confirmation of the first hypothesis supports the expectation-disconfirmation account of satisfaction formation (Oliver, 1999). For smartphone users, attributes such as device durability, battery endurance, data security, sound quality, and display quality are encountered daily, so evaluations of these attributes translate directly into feelings of satisfaction or dissatisfaction. This aligns with Tunahan and Kutlu (2023) for the mobile phone category and with Naini et al. (2022) and Taufik et al. (2022) more broadly, and it reinforces Indonesian findings by Wahid and Ratnamurni (2024) and Zamzami and Erpurini (2025).

The second hypothesis indicates that product quality also operates on loyalty without passing through satisfaction. Users who judge their device technically sound tend to retain it because switching entails cost and risk that outweigh anticipated benefit, a calculation that carries particular weight in a high-involvement category with substantial outlay and extended usage cycles. This corroborates Aji and Nurlinda (2024) and Hongdiyanto and Liemena (2021).

Notably, the standardised coefficient for product quality exceeds that for customer satisfaction. This ordering departs from the pattern common in service-sector mediation studies and suggests that in this category rational appraisal of device quality outweighs affective evaluation in shaping loyalty. Satisfaction is better understood here as a supporting rather than a principal pathway.

The third hypothesis confirms satisfaction as a direct antecedent of loyalty, consistent with Oliver's (1999) staged account and with Yum and Yoo (2023), Khan et al. (2022), and Marcos and Coelho (2022). The fourth hypothesis establishes partial mediation, with roughly a third of the total effect of product

quality transmitted through satisfaction and the remainder operating directly.

This last result diverges from Aji and Nurlinda (2024), who found no mediating effect. The divergence is plausibly attributable to category characteristics. Furniture retail involves infrequent purchase, so satisfaction has little opportunity to accumulate into commitment before the next purchase occasion arises. Smartphones, used daily over several years, allow satisfaction to accumulate and function as a bridge toward loyalty. Category-level purchase frequency and involvement therefore appear to condition whether the mediating mechanism operates, which may help reconcile conflicting findings in the existing literature.

Practically, the results speak to the market-share decline that motivated this study. Because product quality operates through both pathways, improvement in quality attributes yields a compound effect on loyalty. Given that the direct pathway is the stronger one, however, verifiable improvement in device performance should take precedence over programmes addressing perceived satisfaction alone.

CONCLUSIONS AND RECOMMENDATIONS

Product quality has a positive and significant effect on customer satisfaction, product quality has a positive and significant effect on customer loyalty, customer satisfaction has a positive and significant effect on customer loyalty, and customer satisfaction partially mediates the effect of product quality on customer loyalty among Samsung smartphone users in Bandung City.

Management is accordingly advised to prioritise improvement across the measured quality indicators, with particular attention to battery endurance and resistance to damage, since these are the attributes most frequently encountered in daily use. Because the direct pathway from quality to loyalty is stronger than the mediated pathway, marketing communication that addresses perceived satisfaction without corresponding improvement in device quality is unlikely to reverse a declining market share.

ADVANCED RESEARCH

The reliability coefficients obtained from the full sample fall below the conventional threshold of 0.70 for two of the three constructs, which constrains confidence in the precision of the measures; subsequent research should expand the number of items per construct and report composite reliability and average variance extracted through structural equation modelling rather than relying on coefficient alpha alone. This study is also limited to a single brand within a single city, so its findings may not extend to other brands or regions; comparative designs covering more than one brand would establish whether the observed pattern is general or brand-specific. The adjusted R square of 0.429 indicates that a majority of the variance in loyalty remains unexplained, suggesting that variables such as brand image, price perception, after-sales service quality, and switching cost warrant inclusion in subsequent models. The cross-sectional design also constrains causal inference, and longitudinal observation across an actual replacement decision would strengthen claims

about how satisfaction converts into loyalty. Finally, the sample of 90 respondents drawn purposively limits generalisation; larger samples analysed through structural equation modelling would permit simultaneous estimation of the hypothesised paths.

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