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How Payment Features Build Consumer Loyalty the Mediating Role of Satisfaction Among Grab Users in Garut, Indonesia

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ABSTRACT
This study examines whether consumer satisfaction transmits the influence of payment features to consumer loyalty among Grab users in Garut Regency, Indonesia. A quantitative explanatory survey was conducted with 132 eligible users selected through purposive sampling. The final measurement model contained 22 reflective indicators after five indicators with inadequate loadings were removed. Data were analysed with partial least squares structural equation modelling (PLS-SEM) in SmartPLS 4 using 5,000 bootstrap subsamples. Payment features had a positive and significant effect on consumer satisfaction ($\beta = 0.657$, $t = 9.716$, $p < 0.001$), and consumer satisfaction had a positive and significant effect on consumer loyalty ($\beta = 0.819$, $t = 11.242$, $p < 0.001$). The direct effect of payment features on loyalty was positive but not significant ($\beta = 0.102$, $t = 1.197$, $p = 0.232$), whereas the indirect effect through satisfaction was significant ($\beta = 0.538$, $t = 7.661$, $p < 0.001$). The pattern therefore supports indirect-only mediation, often described as full mediation. The model explained 43.2% of the variance in satisfaction and 79.1% of the variance in loyalty. Recalculation confirmed the reported AVE values but identified a discriminant-validity concern between satisfaction and loyalty because their correlation (0.886) exceeded both square roots of AVE (0.864 and 0.815). Accordingly, the strong satisfaction–loyalty path should be interpreted cautiously. The findings indicate that payment convenience, security, and usefulness are more likely to build loyalty when they first generate a satisfying transaction experience. Ride-hailing providers should therefore connect payment-feature improvements with service reliability, transparent problem resolution, and consistent user support.

Keywords: Payment Features, Consumer Satisfaction, Consumer Loyalty, Ride-Hailing.

I. Introduction

Digital platforms have changed how consumers coordinate mobility, purchase food, send goods, and pay for everyday services. Ride-hailing platforms are particularly important because they combine a physical service with a sequence of digital interactions: searching, booking, tracking, paying, rating, and resolving service problems. Within this sequence, payment is not a neutral back-office activity. It is a visible service encounter through which users judge whether the platform is convenient, secure, transparent, and dependable. A payment option that is difficult to locate, slow to confirm, vulnerable to error, or unclear about fees can weaken an otherwise positive trip. Conversely, a payment process that is easy, fast, secure, and integrated can reduce effort and make the service feel more coherent. Indonesia provides a relevant setting for studying this process. The 2025 internet profile issued by the Indonesian Internet Service Providers Association estimated 229.43 million internet users, equivalent to 80.66% of the population (APJII, 2025). Bank Indonesia also reported that QRIS had reached 57 million users and 39.3 million merchants by the first half of 2025, with 6.05 billion transactions worth IDR 579 trillion (Bank Indonesia, 2025). These figures do not prove

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that all consumers use ride-hailing payments in the same way, but they show that digital payment is now embedded in a broad national ecosystem. Platform users increasingly expect interoperability, rapid verification, reliable balances, multiple payment choices, and visible transaction records.

Payment features in ride-hailing applications include the range of accepted methods, interface clarity, processing speed, transaction verification, account or balance protection, promotional integration, and access across related services. These attributes affect the effort and uncertainty involved in completing a transaction. Recent studies show that perceived usefulness, ease of use, quality, and trust remain central to mobile-payment adoption and post-adoption behaviour (Abdul-Halim et al., 2022; Al-Qudah et al., 2024; Tian & Chan, 2024). Evidence from mobile-payment applications also links system and service quality to e-satisfaction, continuance intention, and e-loyalty (Al Amin et al., 2024). Accordingly, payment features should be treated as a bundle of functional and risk-reducing characteristics rather than merely a list of payment instruments. The loyalty problem is more complex. Ride-hailing customers can install several applications and switch between them with little effort. They may compare fares, waiting times, promotions, driver availability, or payment incentives before each trip. Such multi-homing makes repeated use less stable than in conventional service settings. Recent ride-hailing research shows that service quality, perceived safety, value, satisfaction, and loyalty programmes influence continued use and positive word of mouth (Akram et al., 2024; Katili et al., 2024; Nguyen-Phuoc et al., 2021a; Ricardianto et al., 2024). At the same time, discontinuance studies show that risk and declining value can pull users away even after adoption (Lu & Shi, 2025). A useful feature may therefore attract use without becoming a sufficient reason for lasting loyalty.

This distinction is important in Garut Regency. Regional consumers use ride-hailing for passenger transport, food delivery, and goods delivery, but their service environment differs from major metropolitan markets in platform density, merchant coverage, connectivity, and the availability of alternative transport. Research that aggregates users from large cities may not fully represent the way payment convenience and satisfaction operate in a regency context. The present study focuses on consumers domiciled in Garut who have used Grab and have completed a transaction through a payment feature available in the application. Three research gaps motivate the study. First, empirical studies frequently establish that digital service attributes predict satisfaction, but findings about a direct path to loyalty are less consistent. For example, service features can have direct and mediated effects in QR-based payment settings (Nadia & Firmansyah, 2025), whereas other post-adoption studies indicate that satisfaction is the more immediate mechanism connecting technical performance with continued use (Al Amin et al., 2024; Mohd Reza et al., 2024). Treating the direct and indirect coefficients as interchangeable can obscure this distinction.

Second, the theoretical connection between technology acceptance and post-adoption evaluation is often underdeveloped. The Technology Acceptance Model (TAM) explains how usefulness and ease of use shape acceptance-related judgments (Davis, 1989), while Expectation Confirmation Theory (ECT) explains how comparison between expectations and experienced performance produces satisfaction and continuance intention (Bhattacherjee, 2001). TAM is strongest in explaining the evaluation of the technology, whereas ECT is strongest in explaining what happens after use. Integrating them creates a sequential explanation: favourable payment features improve the experienced transaction; the experience confirms expectations; satisfaction then supports loyalty. Third, many studies address initial adoption or continuance intention but do not isolate payment features within a ride-hailing service. Systematic evidence shows that digital-payment research has concentrated heavily on adoption intentions, leaving room for post-use outcomes and context-specific mechanisms (Ramayanti et al., 2024). Recent ride-hailing studies likewise call for measures that capture both digital and physical service touchpoints (Li et al., 2025). The present model narrows the digital touchpoint to payment features and tests satisfaction as the mechanism linking that touchpoint with loyalty.

The study asks four questions: (1) Do payment features positively influence consumer satisfaction? (2) Do payment features positively influence consumer loyalty? (3) Does consumer satisfaction positively influence consumer loyalty? and (4) Does consumer satisfaction mediate the relationship between payment features and loyalty? These questions are examined with PLS-SEM using survey data from 132 Grab users in Garut Regency. The contribution is threefold. Theoretically, the study links TAM's technology evaluations with ECT's post-confirmation process and specifies satisfaction as a mediator rather than treating it as a parallel outcome. Contextually, it provides evidence from a non-metropolitan Indonesian regency where payment infrastructure and platform competition may differ from capital-city settings. Methodologically, the revision distinguishes direct, indirect, and total coefficients, recalculates reported statistics, and explicitly reports a

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discriminant-validity problem that constrains the strength of the conclusions. This transparency is necessary because a large structural coefficient should not be interpreted independently of measurement quality.

Table 1. Recent Evidence and the Position of the Present Study

Study	Context	Main focus	Relevance/gap
Al Amin et al. (2024)	Mobile payment applications	Quality, usefulness, confirmation, satisfaction, continuance, and e-loyalty	Satisfaction predicts both continuance and e-loyalty.
Katili et al. (2024)	Ride-hailing in Indonesia	Loyalty programme, satisfaction, and loyalty	Shows that platform loyalty is relational and programme-dependent.
Ricardianto et al. (2024)	Ride-hailing in Indonesia	Service quality, safety, satisfaction, and attitudinal loyalty	Safety and satisfaction are central to loyalty formation.
Elnadi et al. (2024)	Ride-sourcing in Egypt	Post-use evaluations and continuance	Post-adoption mechanisms explain continued use.
Rana et al. (2025)	Ride-sharing in Bangladesh	E-service quality, satisfaction, and loyalty	Service quality sustains adoption through satisfaction and loyalty.
Nadia & Firmansyah (2025)	QRIS/ShopeePay in Indonesia	Service features, satisfaction, and loyalty	Supports a mediated feature–loyalty relationship.
Present study	Grab users in Garut Regency	Payment features → satisfaction → loyalty	Tests whether payment features build loyalty indirectly in a regional ride-hailing context.

II. Literature Review and Hypothesis Development

2.1. Payment Features and the Technology Acceptance Model

A payment feature is an application capability that enables users to select, authorize, complete, verify, and review a transaction. In ride-hailing, the payment experience may involve stored value, bank transfer, debit or credit cards, interoperable wallets, promotional balances, or other digital methods. The value of these options depends not only on availability but also on whether the user can understand the steps, complete the transaction quickly, trust the verification process, and access the feature across platform services. The construct used here therefore comprises ease of use, security and privacy, and usefulness. TAM proposes that perceived usefulness and perceived ease of use shape a person's response to a technology (Davis, 1989). Ease of use reduces cognitive and procedural effort. Usefulness reflects the degree to which the technology improves task performance. In payment settings, usefulness can be expressed as faster completion, convenient records, wider method choice, and integration with other services. Security is not one of the two original TAM beliefs, but later mobile-payment research consistently treats trust, risk, and security as necessary extensions because a convenient system may still be rejected when financial or personal-data protection is uncertain (Al-Sharafi et al., 2022; Tian & Chan, 2024).

Recent evidence supports this broader view. Abdul-Halim et al. (2022) found that trust, habit, price benefit, and operational constraints contribute to e-wallet continuance. Al-Qudah et al. (2024) showed that mobile-payment adoption reflects a combination of technological and contextual beliefs. Mohd Reza et al. (2024) further demonstrated that satisfaction, effort expectancy, and network externalities influence merchants' continuance intention. The post-COVID study by Cheah et al. (2026) reinforces the relevance of usefulness, ease of use, confirmation, satisfaction, and attitude for sustained e-wallet use. Together, these studies suggest that feature quality matters because it shapes both functional value and confidence. Within Indonesian digital services, payment choice also carries contextual meaning. Consumers may value cash-on-delivery, e-wallets, or deferred payment differently depending on convenience, security, trust, and perceived control (Nurlaila et al., 2026). On an integrated platform such as Grab, users can move between transport, food, and delivery services while relying on a common payment interface. Cross-service accessibility can therefore

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strengthen the perceived usefulness of payment features, while a failure or unclear refund can affect the platform as a whole.

2.2. Consumer Satisfaction and Expectation Confirmation Theory

Consumer satisfaction is a post-use evaluation of whether experienced performance meets or exceeds prior expectations. It includes a cognitive comparison and an affective response. ECT explains that users form expectations, experience the system, compare performance with those expectations, and develop satisfaction or dissatisfaction (Bhattacherjee, 2001). Confirmation strengthens perceived usefulness and satisfaction; satisfaction then supports continuance. This logic is especially suitable for frequently used digital services because consumers repeatedly update their judgments after transactions. In the present study, satisfaction captures confirmation of expectations, positive affect, and overall evaluative judgment. A payment process can satisfy users when it works as expected, reduces effort, verifies the correct amount, protects the user's account, and resolves errors predictably. A promotion may produce short-term pleasure, but stable satisfaction requires consistent performance across routine and problematic transactions. This is why payment features should be assessed as experienced service attributes rather than as purely technical functions.

Mobile-payment evidence confirms the post-adoption role of satisfaction. Al Amin et al. (2024) found that information quality, service quality, system quality, usefulness, and confirmation positively affect e-satisfaction, which in turn predicts continuance and e-loyalty. Nguyen and Dao (2024) showed that satisfaction remains an important determinant of mobile-banking continuance in an extended expectation-confirmation model. Rachma et al. (2026) similarly reported that security and ease of use strengthen satisfaction and loyalty in Indonesian mobile banking. Although banking, mobile payment, and ride-hailing are distinct settings, each involves repeated digital transactions whose quality can confirm or violate expectations. Satisfaction is nevertheless not identical to loyalty. A user can be satisfied with a transaction and still switch because another platform offers a lower fare, shorter waiting time, or stronger promotion. Conversely, a user may continue temporarily because of availability even when satisfaction is modest. Separating the constructs is therefore conceptually necessary, and their empirical distinctness must be demonstrated through measurement-model tests.

2.3. Consumer Loyalty in Ride-Hailing Services

Consumer loyalty is a favourable commitment expressed through continued use, preference, resistance to competitor offers, recommendation, and advocacy. Oliver (1999) describes loyalty as developing from cognitive to affective, conative, and action stages. In online environments, Anderson and Srinivasan (2003) distinguish e-satisfaction from e-loyalty and show that satisfaction is an important but context-dependent foundation of loyalty. For ride-hailing, loyalty has behavioural and attitudinal elements: repeat use may reflect convenience or availability, whereas recommendation and resistance to switching indicate a stronger attachment. The digital platform environment makes loyalty fragile. Users can compare multiple applications in seconds, and competitor promotions lower the economic cost of switching. Lee and Wong (2021) show that perceived usefulness, ease of use, safety, and value contribute to ride-hailing loyalty. Nguyen-Phuoc et al. (2021a) demonstrate that booking-app and post-booking service quality shape continued use and positive word of mouth, while Nguyen-Phuoc et al. (2021b) show that perceived risk can undermine satisfaction and loyalty. These findings indicate that loyalty depends on the whole service journey, not a single feature in isolation.

More recent evidence strengthens this interpretation. Katili et al. (2024) found that a ride-hailing loyalty programme can affect loyalty through relational mechanisms. Ricardianto et al. (2024) show that perceived safety, satisfaction, and service quality are relevant to attitudinal loyalty among Indonesian users. Elnadi et al. (2024) focus on post-use behaviour and demonstrate that continuance is shaped by evaluations formed after experience. Rana et al. (2025) find that digital service quality supports satisfaction and service loyalty in a developing-country ride-sharing market. The emerging literature also cautions against assuming that all service features have direct effects. Li et al. (2025) show that ride-hailing service quality is multidimensional and context specific, while Lu and Shi (2025) demonstrate that perceived risk and

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diminished value can generate discontinuance. Payment quality may consequently become a hygiene condition: essential for avoiding dissatisfaction, but insufficient by itself to secure loyalty when fares, drivers, safety, or service recovery are unfavourable.

2.4. Integrating TAM and ECT

TAM and ECT address different phases of the user journey. TAM explains why a user evaluates a payment technology as easy and useful. ECT explains how the experienced performance of that technology confirms expectations and generates satisfaction after use. Combining the theories avoids treating satisfaction as an unexplained attitude. Payment features operate as antecedent technology attributes; satisfaction is the post-use appraisal; loyalty is the longer-term relational outcome. The integrated sequence is consistent with technology-continuance research. Al-Sharafi et al. (2022) combine expectation-confirmation mechanisms with security and trust to explain sustainable contactless-payment use. Al Amin et al. (2024) connect quality and usefulness with satisfaction and e-loyalty. Nguyen and Dao (2024) extend ECT with adaptation and trust, and Cheah et al. (2026) apply technology-continuance logic to post-COVID e-wallet use. These studies imply that an accepted technology becomes a durable relationship only when experience validates its promised value. This integration also clarifies the mediation expectation. If a payment feature directly creates loyalty, its coefficient should remain significant after satisfaction is included. If the feature mainly improves loyalty by generating satisfaction, the indirect path should be significant while the direct path may become small or non-significant. Contemporary mediation analysis therefore focuses on the bootstrapped indirect effect and distinguishes complementary, competitive, indirect-only, and direct-only patterns rather than relying solely on the older full-versus-partial terminology (Zhao et al., 2010).

2.5. Hypothesis Development

Payment features should increase satisfaction when they reduce effort, shorten transaction time, protect account information, provide accurate verification, and support the user's preferred method. TAM predicts that ease and usefulness improve technology evaluations, while ECT predicts that performance consistent with expectations produces satisfaction. Evidence from mobile-payment and mobile-banking studies supports these links (Al Amin et al., 2024; Rachma et al., 2026; Tian & Chan, 2024). Thus:

H1: Payment features have a positive effect on consumer satisfaction.

A feature can also contribute directly to loyalty when its value is distinctive enough to affect platform preference. Variety of methods, reliable security, integrated promotions, and smooth transactions may encourage repeated use. Research on ride-hailing loyalty programmes and QR-based service features provides evidence for direct feature-related effects (Katili et al., 2024; Nadia & Firmansyah, 2025). However, intense platform competition makes this path uncertain. The directional hypothesis remains:

H2: Payment features have a positive effect on consumer loyalty.

Satisfied users have stronger reasons to reuse and recommend the service because their expectations have been confirmed. This relationship is central to ECT and to e-satisfaction research (Anderson & Srinivasan, 2003; Bhattacherjee, 2001). It is also supported in recent ride-hailing, mobile-payment, and mobile-banking studies (Al Amin et al., 2024; Nguyen-Phuoc et al., 2021a; Rana et al., 2025). Therefore:

H3: Consumer satisfaction has a positive effect on consumer loyalty.

The integrated TAM–ECT mechanism implies that payment features first affect the quality of the transaction experience; satisfaction then transforms that evaluation into continued preference and advocacy. Evidence from digital payment and service-feature studies supports satisfaction as a mediator (Al Amin et al., 2024; Nadia & Firmansyah, 2025; Rachma et al., 2026). Accordingly:

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H4: Consumer satisfaction mediates the effect of payment features on consumer loyalty.

Payment Features Ease of use Security and privacy Usefulness	H1 →	Consumer Satisfaction Expectation confirmation Positive affect Overall evaluation	H3 →	Consumer Loyalty Retention Immunity Recommendation
H4: Payment Features → Consumer Satisfaction → Consumer Loyalty				
H2: Payment Features ——————————————————→ Consumer Loyalty				

Figure 1. Conceptual Framework

III. Research Method

This study used a quantitative, cross-sectional, explanatory survey to examine the relationships among payment features, consumer satisfaction, and consumer loyalty. The unit of analysis was the individual Grab user. The empirical context was Garut Regency, Indonesia, and data collection was conducted in 2026. Because the design observes perceptions at one point in time, the structural paths are interpreted as theory-consistent predictive associations rather than definitive evidence of temporal causality. The target population comprised Grab users domiciled in Garut Regency. The population size was not available from a public sampling frame; therefore, probability sampling could not be implemented. Purposive sampling was used with four inclusion criteria: respondents had to be at least 17 years old, live in Garut Regency, have used a Grab service at least once during the previous six months, and have completed a transaction using a payment method available through the Grab application. Respondents who did not meet all criteria were not included in the analysis. Questionnaires were distributed directly and online through Google Forms, social media, and WhatsApp. Screening questions appeared before the measurement items and asked about domicile, age, recent Grab use, and payment-feature use. The final analytical dataset consisted of 132 complete and eligible responses. Because the online link was circulated through open social-media and messaging channels, the number of people who viewed but did not begin the survey was not known; an exact response rate therefore cannot be calculated. This limitation is reported instead of presenting an unsupported response-rate estimate.

Sample adequacy was evaluated using statistical power rather than the inaccurate assumption that a fixed 'ten-times rule' is universally sufficient for PLS-SEM. For a regression-equivalent equation with two predictors, $\alpha = 0.05$, and power = 0.80, a sample of 132 can detect an effect size of approximately $f^2 = 0.075$, which is between a small and medium effect. The achieved sample also exceeds the conventional requirement for detecting a medium effect. Nevertheless, non-probability selection limits population generalisation even when statistical power is adequate (Kock & Hadaya, 2018). The initial questionnaire contained 27 reflective items: nine for payment features (FP1–FP9), nine for consumer satisfaction (KK1–KK9), and nine for consumer loyalty (LK1–LK9). Following the measurement-model evaluation, FP5 and KK2–KK5 were removed because their outer loadings were below 0.70. The final model therefore retained 22 items: eight payment-feature items, five satisfaction items, and nine loyalty items. Responses were recorded on a five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). Payment features were operationalised through ease of use, security and privacy, and usefulness, drawing on TAM and contemporary mobile-payment research (Davis, 1989; Tian & Chan, 2024). Consumer satisfaction reflected confirmation, positive affect, and overall evaluation, consistent with ECT and e-satisfaction measures (Al Amin et al., 2024; Bhattacherjee, 2001). Consumer loyalty captured continued use, resistance to competitor offers, recommendation, and advocacy (Anderson & Srinivasan, 2003; Oliver, 1999). Wording was contextualised to the Grab payment experience while retaining the conceptual meaning of the source constructs.

PLS-SEM was performed in SmartPLS 4. The measurement model was assessed before the structural model. Convergent validity was evaluated using outer loadings and average variance extracted (AVE), with preferred thresholds of 0.70 and 0.50. Internal consistency was assessed using Cronbach's alpha, rho_A, and composite reliability, with values of 0.70 or higher considered acceptable. Indicator VIF values below 5 were used to screen for problematic collinearity. Discriminant validity was evaluated with the Fornell–Larcker

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criterion; the square root of each construct's AVE should exceed its correlations with other constructs (Fornell & Larcker, 1981). HTMT is now also recommended (Henseler et al., 2015), but it could not be reconstructed from the summary output available for this revision and is therefore identified as a required follow-up analysis. The structural model was evaluated using R^2, adjusted R^2, effect sizes (f^2), Stone–Geisser Q^2 from blindfolding, collinearity diagnostics, and bootstrapped path coefficients. Values of f^2 around 0.02, 0.15, and 0.35 were interpreted as small, medium, and large. A Q^2 above zero indicates predictive relevance for the omitted data points; it is not equivalent to out-of-sample prediction, which would require PLSpredict or holdout data (Shmueli et al., 2019). SRMR was reported as a descriptive approximate-fit index. A value below 0.10 is sometimes treated as acceptable, while 0.08 is a stricter guide; d_ULS and d_G require bootstrap reference quantiles before they can be judged.

Hypotheses were tested with 5,000 bootstrap subsamples using two-tailed tests at $\alpha = 0.05$. Paths were considered statistically significant when $|t|$ exceeded 1.96 and p was below 0.05. Mediation was assessed from the bootstrapped specific indirect effect. Consistent with Zhao et al. (2010), a significant indirect effect combined with a non-significant direct effect was classified as indirect-only mediation. This is often called full mediation, but the indirect-only label more precisely describes the coefficient pattern.

Table 2. Operationalisation of the Retained Indicators

Construct	Dimension	Code	Retained indicator
Payment Features	Ease of use	FP1	Practicality of completing transactions
Payment Features	Ease of use	FP2	Speed of payment processing
Payment Features	Ease of use	FP3	Clarity of payment steps
Payment Features	Security and privacy	FP4	Reliability of balance/account protection
Payment Features	Security and privacy	FP6	Accuracy of transaction verification
Payment Features	Usefulness	FP7	Availability of diverse payment methods
Payment Features	Usefulness	FP8	Efficiency of transaction time
Payment Features	Usefulness	FP9	Accessibility across platform services
Consumer Satisfaction	Expectation confirmation	KK1	Functions meet transaction needs
Consumer Satisfaction	Positive affect	KK6	Satisfying transaction experience
Consumer Satisfaction	Overall evaluation	KK7	Overall satisfaction with payment features
Consumer Satisfaction	Overall evaluation	KK8	Evaluation relative to competing platforms
Consumer Satisfaction	Overall evaluation	KK9	Positive evaluation of feature performance
Consumer Loyalty	Retention	LK1	Intention to continue using Grab
Consumer Loyalty	Retention	LK2	Grab as a priority service choice
Consumer Loyalty	Immunity	LK3	Resistance to competitor offers
Consumer Loyalty	Immunity	LK4	Loyalty without promotional stimulus
Consumer Loyalty	Immunity	LK5	Tolerance of minor technical problems
Consumer Loyalty	Immunity	LK6	Confidence in feature credibility
Consumer Loyalty	Recommendation	LK7	Willingness to recommend the service
Consumer Loyalty	Recommendation	LK8	Positive word of mouth
Consumer Loyalty	Recommendation	LK9	Brand advocacy

IV. Result and Discussion

4.1. Respondent Characteristics

The sample consisted of 132 eligible respondents. Women represented 55.3% and men 44.7%. Generation Z was the largest age group (43.9%), followed by Generation X (30.3%) and millennials (25.8%). Students at school or university together accounted for 49.3% of respondents. The remaining respondents included civil servants, self-employed people, private employees, retirees, freelancers, and homemakers. Although every respondent had used Grab and its payment functionality, preferred-platform responses showed active multi-homing: 36.4% identified Grab as their main platform, 35.6% Gojek, and 28.0% Maxim. This pattern supports the study's loyalty problem because eligibility as a Grab user does not imply exclusive

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preference. Regarding use frequency, 40.2% used online transportation one to three times per week, 31.1% four to seven times, and 28.8% more than seven times.

Table 3. Descriptive Statistics of Respondents

Characteristic	n	%
Gender: Men	59	44.7
Gender: Women	73	55.3
Generation Z	58	43.9
Millennials/Generation Y	34	25.8
Generation X	40	30.3
School students	36	27.3
University students	29	22.0
Civil servants	22	16.7
Private employees	7	5.3
Self-employed	19	14.4
Retirees	8	6.1
Homemakers	5	3.8
Freelancers	6	4.5
Preferred platform: Grab	48	36.4
Preferred platform: Gojek	47	35.6
Preferred platform: Maxim	37	28.0
Use: 1–3 times per week	53	40.2
Use: 4–7 times per week	41	31.1
Use: >7 times per week	38	28.8

4.2. Measurement Model

Five indicators (FP5 and KK2–KK5) were removed because their initial loadings were below 0.70. After re-estimation, all retained loadings ranged from 0.754 to 0.904. Indicator VIF values ranged from 2.081 to 4.279, below the threshold of 5. These results support indicator reliability and show no severe indicator-level collinearity in the retained model. Cronbach's alpha, rho_A, and composite reliability exceeded 0.90 for all constructs. AVE was 0.648 for payment features, 0.747 for consumer satisfaction, and 0.664 for consumer loyalty, all above 0.50. Recalculation from the reported outer loadings produced AVE values of 0.648, 0.746, and 0.664, respectively; the small difference for satisfaction reflects rounding. Convergent validity and internal consistency were therefore supported.

Table 4. Outer Loadings and Indicator VIF

Item	Payment Features	Satisfaction	Loyalty	VIF
FP1	0.789			2.496
FP2	0.825			3.917
FP3	0.822			3.467
FP4	0.841			3.249
FP6	0.781			2.478
FP7	0.818			2.483
FP8	0.769			2.711
FP9	0.793			2.857
KK1		0.851		2.470
KK6		0.837		2.376
KK7		0.904		3.769
KK8		0.897		3.783
KK9		0.828		2.493
LK1			0.787	2.495
LK2			0.809	3.234

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LK3			0.824	2.897
LK4			0.838	3.074
LK5			0.798	3.227
LK6			0.809	2.670
LK7			0.850	4.279
LK8			0.858	3.066
LK9			0.754	2.081

Table 5. Construct Reliability and Convergent Validity

Construct	Cronbach's α	rho_A	Composite reliability	AVE
Payment Features	0.923	0.931	0.936	0.648
Consumer Satisfaction	0.915	0.918	0.936	0.747
Consumer Loyalty	0.936	0.938	0.947	0.664

The original Fornell–Larcker diagonal contained two arithmetic errors. The correct square roots of AVE are $\sqrt{0.648} = 0.805$ for payment features, $\sqrt{0.747} = 0.864$ for satisfaction, and $\sqrt{0.664} = 0.815$ for loyalty. The correlation between satisfaction and loyalty is 0.886, which exceeds both 0.864 and 0.815. Consequently, the Fornell–Larcker criterion is not met for this construct pair. The previous conclusion that all constructs possessed discriminant validity was incorrect. This problem is substantively plausible because the satisfaction and loyalty items include closely related overall evaluation, continued-use, priority, and recommendation content. The structural coefficient from satisfaction to loyalty may therefore be inflated by conceptual overlap. The model can still be reported, but the mediation result must be interpreted as provisional. A revised instrument should remove loyalty-like wording from satisfaction, collect new data, and report HTMT with bootstrap confidence intervals before strong construct-distinctness claims are made (Henseler et al., 2015).

Table 6. Corrected Fornell–Larcker Matrix

Construct	Payment Features	Satisfaction	Loyalty
Payment Features	0.805		
Consumer Satisfaction	0.657	0.864	
Consumer Loyalty	0.640	0.886	0.815

4.3. Structural Model and Hypothesis Tests

Payment features explained 43.2% of the variance in consumer satisfaction (adjusted $R^2 = 0.428$). Payment features and satisfaction jointly explained 79.1% of the variance in loyalty (adjusted $R^2 = 0.787$). The first value is moderate, while the second is substantial. The high loyalty R^2 should nevertheless be interpreted together with the discriminant-validity concern because shared measurement content can raise both correlations and explained variance. The f^2 values in the previous manuscript were rechecked against the reported R^2 values and construct correlations. For the single-predictor satisfaction equation, $f^2 = 0.432/(1 - 0.432) = 0.761$, not 0.701. For loyalty, excluding payment features gives $R^2 \approx 0.886^2$, producing $f^2 = 0.029$; excluding satisfaction gives $R^2 \approx 0.640^2$, producing $f^2 = 1.825$, not 2.641. Minor differences may arise from unrounded latent scores, but the recalculated figures are internally consistent with the published correlation and R^2 tables. Blindfolding produced $Q^2 = 1 - 451.086/660 = 0.317$ for satisfaction and $Q^2 = 1 - 576.692/1,188 = 0.515$ for loyalty. These calculations are correct and indicate predictive relevance within the blindfolding procedure. They should not be described as proof of strong out-of-sample prediction because no holdout or PLSpredict results were reported.

SRMR was 0.082 for the saturated and estimated models. This value meets the liberal 0.10 guideline but narrowly exceeds the stricter 0.08 guideline; model fit is therefore described as marginally acceptable rather than unequivocally good. The d_ULS and d_G values cannot be interpreted without their bootstrap HI95 or HI99 reference values. NFI = 0.749 is below conventional covariance-based benchmarks and is reported descriptively. PLS-SEM inference rests primarily on measurement quality, collinearity, explanatory power, predictive assessment, and bootstrapped paths rather than a single global fit statistic.

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Table 7. Explained Variance

Endogenous construct	R^2	Adjusted R^2	Interpretation
Consumer Satisfaction	0.432	0.428	Moderate
Consumer Loyalty	0.791	0.787	Substantial, interpreted cautiously

Table 8. Recalculated Effect Sizes

Relationship	f^2	Interpretation
Payment Features → Consumer Satisfaction	0.761	Large
Payment Features → Consumer Loyalty	0.029	Small
Consumer Satisfaction → Consumer Loyalty	1.825	Very large; caution due to construct overlap

Table 9. Blindfolding Predictive Relevance

Construct	SSO	SSE	$Q^2 = 1 - SSE/SSO$
Payment Features	1,056.000	1,056.000	Not applicable
Consumer Satisfaction	660.000	451.086	0.317
Consumer Loyalty	1,188.000	576.692	0.515

Table 10. Approximate Model-Fit Indices

Index	Saturated model	Estimated model	Interpretation
SRMR	0.082	0.082	Below 0.10; slightly above 0.08
d_ULS	1.713	1.713	Requires bootstrap reference quantile
d_G	1.111	1.111	Requires bootstrap reference quantile
Chi-square	706.135	706.135	Descriptive in this PLS context
NFI	0.749	0.749	Below conventional 0.90 benchmark

Bootstrapping showed that payment features had a positive and significant association with consumer satisfaction ($\beta = 0.657$, $t = 9.716$, $p < 0.001$); H1 was supported. Satisfaction had a positive and significant association with loyalty ($\beta = 0.819$, $t = 11.242$, $p < 0.001$); H3 was supported. In contrast, the direct payment-features-to-loyalty path was small and non-significant ($\beta = 0.102$, $t = 1.197$, $p = 0.232$); H2 was not supported.The specific indirect effect of payment features on loyalty through satisfaction was positive and significant ($\beta = 0.538$, $t = 7.661$, $p < 0.001$); H4 was supported. The coefficient also equals the product of the component paths after rounding ($0.657 \times 0.819 = 0.538$). Adding the direct and indirect coefficients gives a total coefficient of approximately 0.640, but mediation inference rests on the bootstrapped indirect effect. Because the indirect effect was significant and the direct effect was not, the pattern is indirect-only mediation (commonly called full mediation).

Payment Features	$\beta = 0.657^{***}$ H1 supported →	Consumer Satisfaction $R^2 = 0.432$	$\beta = 0.819^{***}$ H3 supported →	Consumer Loyalty $R^2 = 0.791$
Direct path H2: Payment Features ⟶ $\beta = 0.102$, $p = 0.232$ (not significant) ⟶ Consumer Loyalty				
Indirect path H4: Payment Features → Satisfaction → Loyalty: $\beta = 0.538$, $p < 0.001$ (supported)				

Figure 2. Corrected Structural Model (editable)

Table 11. Direct Effects (Path Coefficients)

Relationship	β	Mean	SD	t	p	Decision
Payment Features → Satisfaction	0.657	0.679	0.068	9.716	<0.001	H1 supported
Payment Features → Loyalty	0.102	0.105	0.085	1.197	0.232	H2 not supported
Satisfaction → Loyalty	0.819	0.820	0.073	11.242	<0.001	H3 supported

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Table 12. Specific Indirect Effect

Indirect relationship	β	Mean	SD	t	p	Mediation
Payment Features → Satisfaction → Loyalty	0.538	0.548	0.070	7.661	<0.001	Indirect-only

4.4. Discussion

The positive path from payment features to satisfaction supports H1 and the sequential logic of TAM and ECT. A coefficient of 0.657 indicates that users who perceive Grab's payment process as easy, secure, and useful tend to report higher satisfaction. Functionally, payment features reduce the time and mental effort needed to complete a transaction. Psychologically, accurate verification and protection reduce uncertainty. When these experiences match what the user expects, confirmation produces satisfaction. This interpretation is consistent with mobile-payment studies that connect quality, ease, usefulness, trust, and confirmation with satisfaction or continuance (Abdul-Halim et al., 2022; Al Amin et al., 2024; Al-Sharafi et al., 2022; Tian & Chan, 2024). The result also extends those findings to a ride-hailing service in a regional Indonesian context. Payment is only one stage of the service journey, yet it is repeated across transport, food, and delivery transactions. A stable payment interface can therefore generate cumulative confidence. The result is compatible with Nurlaila et al. (2026), who show that convenience, security, ease, and trust shape payment-method preferences, and with Rachma et al. (2026), who report that security and ease of use strengthen satisfaction in mobile banking. The common mechanism is not the payment instrument itself but the user's evaluation of control, protection, and task completion.

H2 was not supported: the direct payment-features-to-loyalty path was $\beta = 0.102$ with $p = 0.232$. This correction is important because the earlier discussion incorrectly reported $\beta = 0.640$ as a significant direct effect. The value 0.640 is approximately the total coefficient obtained by combining the direct and indirect paths, not the direct path tested for H2. Once satisfaction is in the model, payment features alone do not explain a statistically distinct portion of loyalty. Users may appreciate the payment interface but still compare fares, promotions, driver availability, travel time, safety, and problem resolution across platforms. The non-significant direct path is theoretically meaningful rather than a failure of the model. In a competitive platform market, convenient payment may be an expected baseline or hygiene factor. Its absence can create dissatisfaction, but its presence may not be sufficiently distinctive to prevent switching. Ride-hailing evidence shows that booking-app quality, post-booking service, perceived risk, safety, service quality, and perceived value jointly shape continuance and loyalty (Nguyen-Phuoc et al., 2021a, 2021b; Ricardianto et al., 2024). Recent discontinuance research also shows that users leave when risk rises or value falls (Lu & Shi, 2025). Payment features should therefore be managed as part of a complete service proposition.

H3 was supported: satisfaction had the largest structural coefficient to loyalty ($\beta = 0.819$). This result is consistent with ECT, in which satisfied users develop stronger continuance intentions after their expectations are confirmed. It also aligns with research linking satisfaction to continued use, recommendation, and e-loyalty in digital services (Al Amin et al., 2024; Nguyen & Dao, 2024; Rana et al., 2025). In practical terms, a satisfied user has fewer reasons to search for an alternative and more confidence in recommending the platform. However, the magnitude of this coefficient must not be separated from the corrected discriminant-validity result. The satisfaction–loyalty correlation of 0.886 exceeds the square roots of AVE for both constructs. This suggests that the survey may not have fully separated an overall positive evaluation from loyalty intentions such as continued use, priority, and recommendation. The very large recalculated f^2 of 1.825 and R^2 of 0.791 may partly reflect true substantive strength and partly reflect overlapping measurement content. The finding therefore supports the theoretical direction but does not justify an unqualified claim about effect magnitude.

H4 was supported because the bootstrapped indirect effect was positive and significant ($\beta = 0.538$, $p < 0.001$). The direct effect was non-significant, so the coefficient pattern is indirect-only mediation. This finding clarifies how TAM and ECT complement one another. Payment features create usefulness, ease, and security evaluations; these evaluations contribute to confirmation and satisfaction; satisfaction then relates to loyalty. Similar post-adoption mechanisms appear in mobile-payment, QRIS, banking, and ride-hailing studies (Al Amin et al., 2024; Nadia & Firmansyah, 2025; Nguyen-Phuoc et al., 2021a; Rachma et al., 2026). The mediation result also explains why feature investment should be evaluated through customer experience rather than

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feature counts. Adding another payment method has limited strategic value if users face failed confirmations, delayed refunds, unclear deductions, fragmented support, or inconsistent promotion rules. Providers should measure task completion, error rates, verification time, refund resolution, perceived security, and satisfaction after problem recovery. These metrics connect technology changes to the mechanism that the model identifies.

For Grab and comparable platforms, the managerial priority is a coordinated payment-and-service strategy. First, the interface should make available methods and final charges transparent before authorization. Second, transaction verification and refund status should be visible and timely. Third, account protection should be communicated in plain language and supported by rapid incident response. Fourth, payment options should operate consistently across transport, food, and delivery. Finally, customer support should resolve payment problems without requiring users to repeat the same information across channels. These improvements are likely to increase loyalty only when users experience them as reliable and satisfying. The descriptive finding that only 36.4% named Grab as their preferred platform, despite all respondents having used Grab, underscores the managerial challenge. Users can be eligible customers without being exclusive or strongly loyal. Segment-level analysis may reveal whether frequent users, younger users, or users with different preferred platforms evaluate payment features differently. Future studies should use measurement-invariance assessment before comparing these groups and should include competitor-specific price, availability, trust, safety, and service-recovery variables. The results make a methodological contribution by demonstrating why arithmetic and terminology matter. A direct effect, an indirect effect, a total coefficient, and a zero-order correlation answer different questions. Mislabeling a path-coefficient table as total effects led the earlier manuscript to report mutually inconsistent conclusions. Recalculating the AVE square roots similarly changed the discriminant-validity conclusion. Transparent reporting protects the theoretical argument from being stronger than the available evidence.

V. Conclusion

This study examined how payment features relate to consumer loyalty through satisfaction among Grab users in Garut Regency. Payment features were positively associated with satisfaction, and satisfaction was positively associated with loyalty. The direct payment-features-to-loyalty path was not statistically significant, while the indirect path through satisfaction was significant. The results therefore support indirect-only mediation: payment features are more likely to contribute to loyalty when they first produce a satisfactory transaction experience. Theoretically, the study connects TAM with ECT across the acceptance and post-acceptance stages. Ease of use, usefulness, and security explain why consumers value a payment technology; expectation confirmation and satisfaction explain how that value becomes a basis for continued preference and recommendation. The absence of a direct effect suggests that payment features are not a self-sufficient loyalty mechanism in a market where consumers can easily switch platforms. Managerially, ride-hailing providers should not evaluate payment innovation only by the number of methods offered or the volume of transactions. They should connect feature development with satisfaction outcomes by monitoring ease of completion, transaction speed, verification accuracy, security perceptions, failed-payment recovery, refund time, and support responsiveness. Reliable performance across the full service journey is more likely to strengthen loyalty than isolated promotions or technical additions.

Several limitations qualify the findings. The cross-sectional design does not establish temporal causality. Purposive sampling and a single-regency setting limit generalisability. The open online distribution channel prevents calculation of a conventional response rate. Self-reported data may contain common-method bias. Most importantly, the corrected Fornell–Larcker matrix does not support discriminant validity between satisfaction and loyalty; the strong path and explained variance may therefore be upwardly biased by construct overlap. SRMR is marginal under the stricter 0.08 guide, and out-of-sample prediction was not tested. Future research should refine the satisfaction scale so it contains only post-use evaluation and does not include continued-use, recommendation, or platform-priority wording. A new sample should be analysed with HTMT and bootstrap confidence intervals, PLSpredict or a holdout sample, and procedural or statistical checks for common-method bias. Longitudinal designs could test whether satisfaction at one period predicts actual reuse later. Probability or stratified sampling across multiple Indonesian regions would improve external validity. Additional mediators and moderators may include trust, perceived risk, service recovery, perceived value, price fairness, safety, customer engagement, and multi-homing intensity.

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