

THE INFLUENCE OF SERVICE QUALITY AND EASE OF ACCESS ON CUSTOMER LOYALTY WITH CUSTOMER SATISFACTION AS A MEDIATING VARIABLE AMONG GRAB USERS IN BATAM CITY

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Abstact

Online transportation services such as Grab have experienced a significant decline in the number of users over the past five years, from 43.50 million in 2020 to 31.60 million in 2024. This decline indicates the presence of issues that need to be addressed, particularly concerning service quality and ease of access, which directly affect customer satisfaction and loyalty. This study aims to analyze the effect of service quality and ease of access on Grab customer loyalty, with customer satisfaction as a mediating variable. The research method employed a quantitative approach through questionnaires distributed to Grab users in Batam City, which were then analyzed using Partial Least Squares Structural Equation Modeling (PLS-SEM). The results show that service quality and ease of access have a positive and significant effect on customer satisfaction, and customer satisfaction significantly mediates the influence of both variables on customer loyalty. These findings affirm that customer loyalty is formed through consistent improvements in service quality and ease of access that generate customer satisfaction.

Keywords: service quality, ease of access, customer satisfaction, customer loyalty, Grab, online transportation, PLS-SEM, Batam City

1. Introduction

Grab Indonesia has undergone a transformation from merely a transportation service provider to an integrated digital platform. Today, Grab offers a wide range of services, including transportation (GrabBike and GrabCar), food delivery (GrabFood), parcel delivery (GrabExpress), daily needs fulfillment (GrabMart), as well as digital payment and financial services through GrabPay and OVO (Grab.com, 2024). Batam City, as a strategic economic and industrial hub in western Indonesia, demonstrates a high level of adoption of online transportation services in line with the increasing mobility needs of both residents and tourists.

However, despite various service innovations introduced by Grab, there remain several issues raised by its users. Lusiana et al. (2020) reported complaints

regarding the reliability and comfort of GrabBike, such as inaccurate driver routes and driver mismatches. Similarly, Kinasih and Rizqullah (2023) highlighted problems in GrabFood services, including application errors and difficulties in canceling orders. More recently, Mirena and Haryanto (2024) revealed complaints concerning incorrect orders and food quality that did not meet customer expectations. These issues indicate persistent challenges in maintaining consistent service quality.

Amid these dynamics, competition in the online transportation industry has also intensified. Data from the Top Brand Award shows that the number of Grab users has declined significantly, from 43.5 million in 2020 to only 31.6 million in 2024. In contrast, competitors such as Gojek experienced relatively stable growth, reaching 62 million users in 2024. This trend suggests that customer loyalty toward Grab is weakening, most likely influenced by perceptions of

inconsistent service quality and user experience (Top Brand Award, 2024).



Picture 1: Online Transportation Users in 2020-2024 (Top Brand Award, 2024)

Customer loyalty is a key factor in ensuring business sustainability within service-based industries. Wijaya (2018) demonstrated that service quality plays a direct and crucial role in shaping customer loyalty toward Grab. Furthermore, the ease of access—both in terms of technical application features and service availability across different regions—also contributes to user convenience and decision-making in utilizing online transportation platforms (Azhar & Wage, 2024). In Batam City, the demand for reliable and accessible services is particularly essential given its dense population and position as a hub for business and tourism.

Beyond technical and operational aspects, emotional factors also play a vital role in shaping customer perceptions. A sense of safety, comfort, and consistently positive experiences encourage users to remain loyal to a particular service (Kinanthi & Sisila, 2024). Therefore, companies like Grab must not only focus on service innovation but also on creating a holistic and satisfying customer experience. Winata (2021) emphasized that customer satisfaction in Batam City has a strong correlation with loyalty, reinforced by service quality and trust in the platform.

Nevertheless, most previous studies have focused on the direct impact of service quality on customer loyalty without considering the mediating role of satisfaction. In fact, satisfaction is a critical element that can strengthen or weaken this relationship. Moreover, research specifically focusing on Grab users in Batam City remains limited. Hence, this study aims to thoroughly examine the influence of service quality and ease of access on customer loyalty, while considering customer satisfaction as a mediating variable. The results are expected to provide empirical contributions for companies in formulating more effective service strategies and serve as a scientific reference for further studies in the field of service marketing and digital technology.

2. Literature Review

Customer Loyalty

Customer loyalty refers to the commitment of consumers to continuously use a brand's products or services despite the presence of competing alternatives. According to Kotler and Keller (as cited in Zusrony, 2021), loyalty can be defined as a strong commitment by customers to consistently repurchase. Meanwhile, Tjiptono (as cited in Pramudita et al., 2022) emphasized that loyalty arises from consistently positive experiences. Loyal customers tend to make repeat purchases, remain faithful to a brand, and are less likely to switch to competitors (Hurriyati as cited in Gultom et al., 2020; Rifa'i, 2019).

Swastha (as cited in Erawati, 2020) noted that several factors influence customer loyalty, including product quality, service quality, emotional aspects, pricing, and cost-effectiveness. Strong emotional bonds with a brand and satisfaction with product value serve as key drivers of long-term loyalty.

Kotler and Keller (as cited in Mashuri, 2020) identified three main indicators of customer loyalty:

1. **Repeat Purchase** – the customer's commitment to reusing a product or service they previously chose.
2. **Retention** – the customer's resistance to negative influences such as issues or unfavorable reviews about the company.
3. **Referrals** – the willingness of customers to recommend the brand to others, reflecting satisfaction and trust in the service.

Thus, loyalty is not only a rational preference but also an emotional attachment built through sustained positive experiences. Loyalty is crucial for companies to retain customers, increase revenue, and strengthen brand positioning in the market.

Service Quality

Service quality refers to the extent to which a service can meet or even exceed customer expectations. Salsabila (2023) described service quality as a long-term evaluation by consumers of the services they receive. This assessment is based on two components: customer expectations and perceptions of actual service delivery (Destari & Adi, 2023). The smaller the gap between the two, the higher the perceived service quality. Qudus and Amelia (2022) also stressed that service quality is determined by responsiveness, reliability, assurance, empathy, and tangible evidence.

Moenir (2017) identified several factors influencing service quality, including employee awareness, organizational rules, work systems, compensation, human resource skills, and service facilities. These

elements are essential in creating optimal and sustainable services, especially in service-based industries.

Fawzi (2022) further outlined five main indicators of service quality:

1. **Reliability** – consistency in providing accurate and timely services.
2. **Responsiveness** – readiness to assist and fulfill customer needs.
3. **Assurance** – building trust through professionalism and competence.
4. **Empathy** – personal attention and service flexibility for customers.
5. **Tangibles** – the appearance of facilities, equipment, and employees as part of service quality.

Ease of Access

Huddin, Masitoh, and Ikhsan (2021) explained that ease of use relates to user perceptions of how simple and manageable a system is. Marisa (2020) added that ease of use also reflects minimal obstacles in utilizing technology, which plays a vital role in fostering continuous usage intentions. In the digital era, ease of access has become an essential factor in enhancing service efficiency and customer satisfaction (Lestari & Ramadhan, 2024).

Factors influencing ease of access encompass three main aspects: (1) **technological characteristics**, such as quality and compatibility with prior user experience; (2) **technological reputation**, including perceptions of system security and reliability; and (3) **supporting facilities and infrastructure**, such as technical assistance and network availability (Huddin et al., 2021).

Amalia and Saryadi (2018) proposed three key indicators to measure ease of access:

1. **Easy to Learn** – the extent to which services are simple to learn and operate.
2. **Controllable** – the user’s ability to manage and adjust services according to their needs.
3. **Flexible** – the availability of services anytime and anywhere, without time or location constraints.

By providing easily accessible services, companies can increase customer convenience, encourage repeat usage, and strengthen customer loyalty.

Customer Satisfaction

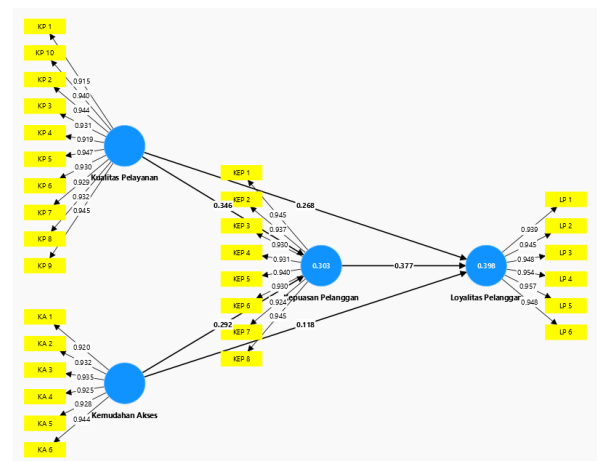
Customer satisfaction can be defined as consumers’

reactions after using a product or service, reflecting the extent to which their expectations are met (Zaid, 2021). Suwitho (2022) explained that satisfaction arises from comparing customer expectations with actual performance. When the product or service exceeds expectations, customers feel satisfied and are likely to provide positive feedback.

Several factors contribute to customer satisfaction, including product quality, service quality, emotional aspects, pricing, and cost efficiency (Indrasari, 2019). These five elements serve as primary determinants in assessing customer satisfaction levels.

Limakrisna and Purba (2021) emphasized that customer satisfaction occurs when the outcomes received exceed expectations. Key indicators of satisfaction include positive feelings toward the service, loyalty in usage, willingness to recommend the product, and fulfillment of customer expectations (Indriyani et al., 2022).

Picture 2
Conceptual Framework



Source : processed data, 2025

Variable Notation :

X1 = Service Quality

X2 = Ease of Access

Y = Customer Loyalty

Z = Customer Satisfaction

Hypotheses

Based on the literature review and conceptual framework, the hypotheses of this study are formulated as follows:

H1: Service quality (X1) has a positive effect on customer satisfaction (Z). Service quality plays a key role in satisfying customers, as it reflects how companies strive to meet consumer needs and expectations, ensuring service delivery that meets or even exceeds expectations (Tjiptono, 2015, as cited in Sasono, Sopi, & Prasetyo, 2023). Winata (2021) also found that fast, reliable, and responsive service quality increases customer satisfaction in online transportation services such as Grab.

H2: Ease of access (X2) has a positive effect on customer satisfaction (Z). According to Azhar and Wage (2024), ease of access, such as user-friendly applications and service availability in various locations, provides convenience for users and enhances satisfaction with online transportation services. Services that are easy to access make customers feel valued and supported in their daily activities.

H3: Service quality (X1) has a positive effect on customer loyalty (Y). Yani and Sugiyanto (2023) found that high service quality significantly builds trust and ultimately enhances customer loyalty. Similarly, Winata (2021) emphasized that satisfying service encourages customers to continue using the service and recommending it to others.

H4: Ease of access (X2) has a positive effect on customer loyalty (Y). Azhar and Wage (2024) demonstrated that ease of access is one of the factors that strengthen user loyalty because it makes obtaining services more convenient. This ease creates positive experiences that encourage customers to remain loyal to Grab.

H5: Customer satisfaction (Z) has a positive effect on customer loyalty (Y). Satisfaction is the foundation of loyalty; satisfied customers generally continue to use the service and are more likely to recommend it to others (Ahmudin & Ranto, 2023, as cited in Alim, Zufriah, & Fathoni, 2025). Winata (2021) also confirmed that satisfaction significantly influences loyalty among Grab users.

3. Research Methodology

This study employs a quantitative approach with a descriptive method. The quantitative approach emphasizes structured planning and systematic execution of research, starting from the initial stage to the design of the study (Sugiyono, 2019). The descriptive method is used to objectively and systematically describe facts, characteristics, and relationships among variables without making broad generalizations. According to Sugiyono (2019), the descriptive method explains data as they are, while the quantitative approach aims to analyze the relationships between two or more variables using statistical tests.

This research applies **Partial Least Squares**

Structural Equation Modeling (PLS-SEM), a multivariate statistical technique designed to test complex relationships among latent constructs simultaneously. PLS-SEM is appropriate for predictive quantitative research, particularly with relatively small sample sizes (Hair et al., 2019). The analysis stages include **Outer model testing** to assess convergent validity using loading factors and AVE, as well as construct reliability using composite reliability and Cronbach's alpha and **Inner model testing** to evaluate R-square, Q-square, and path coefficients in order to test the proposed hypotheses (Hair et al., 2019).

Data Sources

Two types of data were utilized in this study:

1. **Primary Data** – obtained directly from respondents through questionnaires distributed to Grab users in Batam City. The instrument was designed to capture respondents' perceptions of the studied variables.
2. **Secondary Data** – collected from official reports, institutional publications, data from the Central Statistics Agency (BPS), and prior research relevant to this study.

Research Instrument

The research instrument served as a tool to measure the social phenomena under study. As stated by Sugiyono (2019), instruments are developed to obtain data aligned with research objectives through relevant indicators. This study employed a structured questionnaire using a Likert scale, developed from the indicators of each variable. Each indicator was operationalized into statements rated on a five-point scale, ranging from "strongly disagree" to "strongly agree."

Table 1
Research Instrument Grid

Variable	Indicator
Customer Loyalty	1 Loyalty toward product purchases (Repeat Order)
	2 Resistance to negative influences about the company (Retention)
	3 Referring the company as a whole (Referrals) (Kotler and Keller in Mashuri, 2020)
Service Quality	1 Reliability
	2 Responsiveness
	3 Assurance
	4 Empathy
	5 Tangibles (Fawzi, 2022)
Ease of Access	1 Easy to understand or learn (Easy to Learn)
	2 Easy to manage or control (Controllable)
	3 Usable anytime and anywhere (Flexible) (Saryadi, 2018)
Customer Satisfaction	1 Enjoyment
	2 Loyalty
	3 Willingness to recommend
	4 Expectation conformity (Indriyani et al., 2022)

Research Location and Object

The study was conducted in Batam City, Riau Islands Province, an area characterized by high mobility. This condition drives the use of online transportation services such as Grab as a primary choice for daily travel needs. The research focused on Grab users in Batam City to analyze the effects of service quality and ease of access on customer satisfaction, as well as the mediating role of satisfaction in shaping loyalty.

Sampling

According to Sugiyono (2019), a sample is a subset of the population possessing specific characteristics that represent the entire population. Due to limitations of time, cost, and resources, the study could not cover all Grab users in Batam City. Therefore, **purposive sampling** was employed, selecting respondents based on specific criteria relevant to the study objectives.

The sample characteristics were as follows:

1. Active Grab users within the past year;
2. Aged above 17 years;
3. Residents of Batam City.

Data Collection and Analysis

Data were collected through questionnaires distributed to Grab users in Batam City. Respondents provided answers based on their personal opinions and experiences with Grab's services.

Data were analyzed using PLS-SEM with the SmartPLS software. This approach was chosen because it enables simultaneous analysis of complex relationships between latent variables, including both direct and indirect (mediated) effects. PLS-SEM is particularly suitable for exploratory and predictive studies, as well as models involving non-normal data distributions or relatively small sample sizes (Hair et al., 2019).

Through this method, the study aims to gain a comprehensive understanding of how service quality and ease of access influence customer loyalty, with customer satisfaction serving as a mediating variable.

4. Results and Discussion

Respondent Characteristics

Data were collected through questionnaires, providing information about respondents' demographics, including gender, age, frequency of Grab usage, and residential district.

Diagram 1
Respondents Based on Gender

No	Gender	Number of Respondents	Percentage (%)
1	Male	36	34.3%
2	Female	69	65.7%
	Total	105	100.0%

Source : processed data, 2025

The demographic data show that the majority of participants in this study were female Grab users, with 69 respondents (65.7%), while male users accounted for 36 respondents (34.3%).

Table 3
Respondents Based on Age

No	Ages	Number of Respondents	Percentage (%)
1	17-20 Tahun	12	11.4%
2	21-25 Tahun	50	47.6%
3	26-30 Tahun	27	25.7%
4	30 Tahun Keatas	16	15.2%
	Total	105	100.0%

Source : processed data, 2025

In terms of age, most respondents belonged to the 21–25 years age group, totaling 50 respondents (47.6%). This was followed by the 26–30 years group with 27 respondents (25.7%), respondents above 30 years old with 16 respondents (15.2%), and the 17–20 years group with 12 respondents (11.4%).

Table 4
Respondents Based on Grab Usage

No	Grab Usage	Number of Respondents	Percentage (%)
1	1-5 Times	32	30.5%
2	6-10 Times	43	41.0%
3	>10 Times	30	28.6%
	Total	105	100.0%

Source : processed data, 2025

The frequency of Grab usage varied among respondents. A total of 43 respondents (41.0%) used Grab between 6 to 10 times within a year, 30 respondents (30.5%) used the service more than 10 times, while 21 respondents (28.6%) used it 1 to 5 times.

Table 5
Respondents Based on District

No	District of Residence	Number of Respondents	Percentage (%)
1	Batam Kota	30	28.6%
2	Lubuk Baja	25	23.8%
3	Bengkong	20	19.0%
4	Sei Beduk	15	14.3%
5	Nongsa	15	14.3%
	Total	105	100.0%

Source : processed data, 2025

In terms of geographical distribution, most respondents were from Batam Kota District with 30 respondents

(28.6%), followed by Lubuk Baja with 25 respondents (23.8%), Bengkong with 20 respondents (19.0%), and Sei Beduk and Nongsa with 15 respondents each (14.3%).

Model Testing

This study employs the Structural Equation Modeling (SEM) analysis technique based on Partial Least Squares (PLS) with the assistance of SmartPLS software. This method is utilized to examine the relationships among latent variables, including both direct effects and indirect effects through the mediating variable.

Outer Model Test

The output of the outer model analysis can be seen in the following table:

Table 6
Convergent Validity Test Results

Variable	Indicator	Loading Factor	Result	AVE	Result
Ease of Access	EA1	0.920	Valid	0.866	Valid
	EA2	0.932	Valid		
	EA3	0.935	Valid		
	EA4	0.925	Valid		
	EA5	0.928	Valid		
	EA6	0.944	Valid		
Customer Satisfaction	CS1	0.945	Valid	0.875	Valid
	CS2	0.937	Valid		
	CS3	0.930	Valid		
	CS4	0.931	Valid		
	CS5	0.940	Valid		
	CS6	0.930	Valid		
	CS7	0.924	Valid		
	CS8	0.945	Valid		
Service Quality	SQ1	0.915	Valid	0.871	Valid
	SQ2	0.944	Valid		
	SQ3	0.931	Valid		
	SQ4	0.919	Valid		
	SQ5	0.947	Valid		
	SQ6	0.930	Valid		
	SQ7	0.929	Valid		
	SQ8	0.932	Valid		
	SQ9	0.945	Valid		
	SQ10	0.940	Valid		
Customer Loyalty	CL1	0.939	Valid	0.900	Valid
	CL2	0.945	Valid		
	CL3	0.948	Valid		
	CL4	0.954	Valid		
	CL5	0.957	Valid		
	CL6	0.948	Valid		

Source : processed data, 2025

The results of the outer model analysis show that all indicators had loading factor values above 0.90, indicating that each indicator strongly reflects the construct being measured. According to Hair et al. (2021), a loading factor above 0.70 meets the minimum validity requirement, while a value above 0.90 indicates very high indicator reliability. Thus, the indicators used in this study are highly valid in measuring their respective constructs.

Furthermore, the Average Variance Extracted (AVE) values for all constructs exceeded 0.80. This means that each construct explains more than 80% of the variance in its indicators. Hair et al. (2021) noted that an AVE above 0.50 already fulfills convergent validity, while values above 0.80 indicate a very strong level of convergent validity. Therefore, the measurement model is declared valid and reliable.

Table 7
Discriminant Validity Test Results

Variable	HTMT	Result
Customer Satisfaction <-> Ease of Access	0.470	Valid
Service Quality <-> Ease of Access	0.495	Valid
Service Quality <-> Customer Satisfaction	0.494	Valid
Customer Loyalty <-> Ease of Access	0.431	Valid
Customer Loyalty <-> Customer Satisfaction	0.571	Valid
Customer Loyalty <-> Service Quality	0.518	Valid

Source : processed data, 2025

The discriminant validity test in this study was conducted using the Heterotrait-Monotrait Ratio (HTMT) approach, which aims to ensure that each construct in the model is distinct and does not overlap with other constructs. The analysis results indicate that all HTMT values range between 0.431 and 0.571. These values suggest that no pair of constructs exhibits excessively high correlations that would indicate overlapping meanings between them. According to Hair et al. (2022), acceptable HTMT values should be below 0.85 for conservative testing, while a maximum threshold of 0.90 remains acceptable in exploratory or social research contexts. Based on these guidelines, all relationships among the constructs in this study meet the criteria for discriminant validity. This finding implies that the constructs of Ease of Access, Service Quality, Customer Satisfaction, and Customer Loyalty indeed represent distinct and independent dimensions within the developed structural model.

Table 8
Construct Reliability Test Results

Variable	Cronbach's Alpha	Result	CR	Result
Ease of Access	0.969	Relabel	0.969	Relabel
Customer Satisfaction	0.980	Relabel	0.980	Relabel
Service Quality	0.984	Relabel	0.985	Relabel
Customer Loyalty	0.978	Relabel	0.979	Relabel

Source : processed data, 2025

The construct reliability test in this study was carried out using two main indicators, namely Cronbach's Alpha and Composite Reliability (CR). The analysis results show that all research variables—Ease of

Access, Customer Satisfaction, Service Quality, and Customer Loyalty—have Cronbach’s Alpha values ranging from 0.969 to 0.984, and CR values ranging from 0.969 to 0.985. These values are well above the minimum threshold of 0.70 recommended by Hair et al. (2022), who stated that Cronbach’s Alpha and CR values ≥ 0.70 indicate that the indicators within the constructs demonstrate very good internal consistency. Thus, it can be concluded that all constructs in the research model are reliable, meaning that all indicators consistently and accurately measure their respective constructs. This finding provides confidence that the data used possess high stability and internal coherence, making them suitable for further analysis within the structural model.

Inner Model Test

The output of the inner model analysis can be seen in the following table:

Table 9
Coefficient of Determination (R²) Test Results

Variable	R-square	R-square Adjusted
Customer Satisfaction	0.303	0.289
Customer Loyalty	0.398	0.380

Source : processed data, 2025

The coefficient of determination test was employed to measure the extent to which the independent variables contribute to explaining the dependent variables. The analysis results show that the R-square value for Customer Satisfaction is 0.303, with an adjusted R-square of 0.289. This indicates that Service Quality and Ease of Access together explain approximately 30.3% of the variance in Customer Satisfaction, while the remaining 69.7% is influenced by other factors not included in this research model. Meanwhile, the R-square value for Customer Loyalty is 0.398, with an adjusted R-square of 0.380, suggesting that Service Quality, Ease of Access, and Customer Satisfaction simultaneously explain 39.8% of the variance in Customer Loyalty.

According to Hair et al. (2021), an R-square value of 0.25 is categorized as weak, 0.50 as moderate, and 0.75 as substantial in the context of social research using PLS-SEM. Based on these criteria, the R-square value for Customer Satisfaction falls within the adequate category (approaching moderate), and the R-square value for Customer Loyalty also indicates a fairly strong level, although not yet reaching the moderate threshold. This implies that the research model has a sufficient ability to explain the relationships among constructs, although there remains room for improvement by incorporating other relevant variables in future studies.

In PLS-SEM analysis, it is common to observe high construct validity (both convergent and discriminant validity) alongside relatively lower R-square values, particularly in social and consumer behavior research. High construct validity—evidenced by Average Variance Extracted (AVE) values greater than 0.5 and indicator loadings above 0.7—demonstrates that each construct is well-measured and internally consistent (Hair et al., 2021). In other words, the research instrument is statistically capable of accurately representing the constructs being measured.

However, lower R-square values for dependent constructs (such as Customer Loyalty) suggest that the independent variables in the model do not fully explain the variance of these constructs. This may occur because consumer behavior, especially in the context of loyalty among digital service users such as Grab, is influenced by various external factors not included in the model, such as price, brand image, promotions, network quality, security, or even situational and psychological factors (Wong & Ladhari, 2023; Setiadi et al., 2022).

Moreover, in exploratory research or within complex social contexts, an R-square value of 0.2–0.3 is often considered adequate, depending on the context and the type of variables involved (Hair et al., 2021). Thus, high construct validity does not necessarily guarantee a high R-square value, as the two measure different aspects: validity assesses the quality of construct measurement, while R-square reflects the extent to which independent variables explain dependent variables within the model.

Table 10
Predictive Relevance (Q²) Test Results

Variable	Q-square
Ease of Access	0.000
Customer Satisfaction	0.255
Service Quality	0.000
Customer Loyalty	0.349

Source : processed data, 2025

The predictive test using the Q-square value (Stone-Geisser’s Q²) was applied to evaluate the model’s ability to predict the indicators of endogenous constructs. A higher Q-square value indicates stronger predictive capability of the model. In this study, the Q-square value for Customer Satisfaction is 0.255, while for Customer Loyalty it is 0.349. Meanwhile, the Q-square values for exogenous variables such as Ease of Access and Service Quality are 0.000, which is reasonable since these constructs are independent and thus not assessed for predictive relevance toward other indicators.

According to Hair et al. (2021), Q-square values greater than 0 indicate that the model has predictive capability, with the following quantitative interpretation: $Q^2 = 0.02$ is categorized as weak, 0.15 as moderate, and 0.35 as strong. Therefore, the Q-square value of 0.255 for the Customer Satisfaction construct suggests that the model possesses moderate predictive ability, while the value of 0.349 for Customer Loyalty nearly reaches the strong threshold. This demonstrates that the model is effective in predicting loyalty based on the constructs employed. These results provide confidence that the developed structural model is sufficiently robust in explaining and predicting Grab customers' behavior in Batam City, particularly in terms of their loyalty toward the service.

Hypothesis Testing

The output of the hypothesis testing analysis can be seen in the following table:

Table 10
Hypothesis Testing Results

Variable	P Values	Results
Accessibility -> Customer Satisfaction	0.002	Significant
Accessibility -> Customer Loyalty	0.214	Not Significant
Customer Satisfaction -> Customer Loyalty	0.000	Significant
Service Quality -> Customer Satisfaction	0.000	Significant
Service Quality -> Customer Loyalty	0.004	Significant

Source : processed data, 2025

Based on the results of direct hypothesis testing using PLS-SEM, it was found that Accessibility has a significant effect on Customer Satisfaction, with a p-value of 0.002 ($p < 0.05$). This finding indicates that the easier Grab services can be accessed by customers, the higher the level of satisfaction they experience. This result is in line with Hair et al. (2021), who state that the relationship between constructs is considered significant when the p-value is less than 0.05. However, a different outcome was observed in the relationship between Accessibility and Customer Loyalty, where the p-value of 0.214 indicates that the effect is not statistically significant. This suggests that accessibility does not directly increase customer loyalty, but is more likely to influence loyalty indirectly through the mediating role of customer satisfaction. According to Hair et al. (2021), indirect effects may occur when the relationship between an independent and dependent variable is mediated by a third variable, which can be tested through mediation path analysis in PLS-SEM.

Furthermore, Customer Satisfaction was found to have a significant effect on Customer Loyalty, with a p-value of 0.000. This indicates that satisfied customers tend to demonstrate a strong commitment to continue using the service and are more likely to recommend it to others. This highlights the crucial role of satisfaction as a key predictor of loyalty. In addition, Service Quality shows a significant effect on both Customer Satisfaction ($p = 0.000$) and Customer

Loyalty ($p = 0.004$). This implies that high-quality service not only enhances customer satisfaction but also directly fosters greater loyalty. Taken together, these findings suggest that customer satisfaction functions as the primary mediating variable, bridging the effect of both accessibility and service quality on customer loyalty as a whole.

Mediation Analysis

Based on the results of the analysis, it was found that Customer Satisfaction fully mediates the relationship between Accessibility and Customer Loyalty. This is indicated by the non-significant direct effect of Accessibility on Customer Loyalty ($p = 0.214$), while the indirect effect through Customer Satisfaction is significant. Specifically, the relationship between Accessibility and Customer Satisfaction ($p = 0.002$) as well as the relationship between Customer Satisfaction and Customer Loyalty ($p = 0.000$) were both statistically significant. Thus, it can be concluded that Accessibility only affects Customer Loyalty when customers first experience satisfaction with the service. This finding is consistent with Hair et al. (2021), who explain that full mediation occurs when the indirect path is significant while the direct path is not.

Discussion

This study demonstrates that service quality plays an important role in enhancing customer satisfaction. Fast, accurate, and reliable services that meet user expectations are able to create a satisfying experience. This finding is consistent with Tjiptono (2020), who emphasized that service quality is a key factor in meeting consumer expectations. Similarly, Winata (2021) also found that responsiveness and reliability in digital transportation services significantly contribute to customer satisfaction, thereby reinforcing the notion that service quality is a primary determinant in building user satisfaction.

In addition to service quality, ease of access has also been shown to significantly influence user satisfaction. Easy access, a user-friendly application, and sufficient service availability encourage users to feel more comfortable when using Grab. This result is consistent with the findings of Azhar and Wage (2024), who noted that positive perceptions of app-based transportation services are strongly influenced by their level of user-friendliness. Thus, accessibility can be regarded as an important element in creating a more efficient and enjoyable experience for consumers.

Meanwhile, the findings also indicate that **service quality has a positive relationship with customer loyalty**. Users who experience consistent, professional, and reliable services are more likely to maintain their choice and be willing to recommend the service to others. This aligns with the study of Yani and Sugiyanto (2023), which emphasized that good service

quality fosters trust and ultimately strengthens customer loyalty.

In contrast to service quality, ease of access does not have a direct effect on customer loyalty. Although Grab is relatively easy to access through its application, such convenience does not automatically lead to customer loyalty. Loyalty is more likely to be established when users gain a satisfying experience from the services provided. These findings differ slightly from the study of Azhar and Wage (2024), which emphasized the role of ease of access in building loyalty. However, in the context of this research, accessibility functions more as an indirect factor, operating through customer satisfaction as the mediator.

Furthermore, this study confirms that customer satisfaction is the key determinant in fostering loyalty. When customers feel satisfied, they tend to develop a stronger attachment to continue using the service and are more likely to recommend it to others. This finding aligns with the view of Ahmudin & Ranto (2023, in Alim et al., 2025), who emphasized that satisfaction serves as the foundation of customer loyalty. It is also supported by the findings of Winata (2021), who stated that satisfied customers not only engage in repeat purchases but also play an active role in spreading positive recommendations.

Overall, this study emphasizes that customer loyalty in digital transportation services such as Grab is not solely dependent on ease of access, but is more strongly influenced by service quality that fosters satisfaction. In other words, satisfaction functions as a bridge between service quality and customer loyalty, highlighting the importance for companies to ensure consistent service delivery in order to build long-term relationships with their customers.

Conclusion

This study was conducted to analyze the effect of service quality and ease of access on customer loyalty, with customer satisfaction as a mediating variable among Grab users in Batam City. The results indicate that **service** quality is the most decisive factor in enhancing both satisfaction and loyalty. Customers who experience fast, accurate, and reliable services are more likely to feel satisfied, and such satisfaction further encourages them to remain loyal and recommend the service to others. These findings are consistent with Alkhateeb et al. (2022), who emphasized that a positive perception of service quality is the primary foundation for customer satisfaction in digital-based industries. Similarly, El-Said and Aziz (2021) highlighted that digital service quality plays a crucial role in building customer trust, which ultimately strengthens loyalty.

Ease of access was also found to have a significant effect on customer satisfaction. Easy access through a

user-friendly application, simple features, and the availability of prompt services make customers feel more comfortable using Grab. This finding is consistent with Azhar and Wage (2024), who revealed that convenience and accessibility are among the key factors that strengthen customers' positive perceptions of digital transportation services. However, unlike service quality, ease of access does not have a direct effect on loyalty. This result suggests that although the application is easy to use, customer loyalty is more strongly influenced by the emotional experience of satisfaction rather than merely functional aspects. This is in line with Zhang et al. (2023), who stated that loyalty in digital services is more complex and does not solely depend on ease of use, but also on the emotional attachment customers develop from the service experience.

Furthermore, this study confirms that customer satisfaction serves as a significant mediating variable. In other words, although ease of access does not directly foster loyalty, it still contributes indirectly through enhancing customer satisfaction. This finding supports the view of Ahmudin and Ranto (2023, in Alim et al., 2025), who emphasized that satisfaction functions as an essential bridge linking functional factors to loyalty. Thus, it can be concluded that customer loyalty in the context of digital transportation is shaped not only by technical aspects, but more importantly by service quality that is capable of creating a satisfying experience.

Overall, this study confirms that customer loyalty in online transportation services such as Grab results from the combination of consistent service quality and high levels of customer satisfaction. This indicates that the primary strategy for companies in retaining long-term customers lies in delivering services that exceed consumer expectations and ensuring positive experiences at every point of service interaction. Accordingly, the practical implication of this study is the importance of focusing on the quality of interactions and customer experience management as key strategies in fostering loyalty (Alkhateeb et al., 2022; El-Said & Aziz, 2021; Zhang et al., 2023).

However, this study is not without several limitations. First, the scope of respondents was limited to Grab users in Batam City; therefore, the findings may not necessarily be generalized to other cities or different digital transportation services. Second, the use of questionnaires as the primary instrument may introduce subjective bias, as respondents tend to answer based on perception rather than actual behavior. Third, the analytical method employed was limited to the PLS-SEM approach, which restricts the exploration of customer loyalty from a longitudinal perspective or through comparisons with other analytical models.

Based on these limitations, future research is expected to expand the scope of respondents to a wider area with

more diverse characteristics, including age, occupational background, and level of application usage, so that the results will be more representative. Subsequent researchers may also combine quantitative approaches with qualitative methods, such as in-depth interviews or focus group discussions, to gain a more comprehensive understanding of customer experiences. In addition, employing more varied analytical methods, such as covariance-based SEM or longitudinal studies, could provide a richer picture of the factors influencing customer loyalty in the long term.

Thus, this study provides an important contribution to enriching the literature on customer behavior in digital transportation services and serves as a foundation for developing practical strategies to enhance customer loyalty in the increasingly competitive digital industry.

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